



The Cleveland Medical Journal

1904

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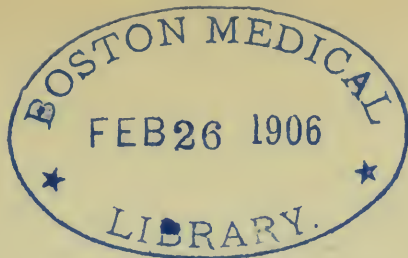
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NO I

The Clinical Relations of Stomach Disorders in Diabetes

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Concerning the condition of the stomach and its functional performance in this disease, most texts content themselves with some such statement as "the existence of diabetes tends to produce, sooner or later, severe stomach disturbances." A few articles give some particular mention of this side of the question, and these have been quoted in the latter portion of this paper.

Professional attention seems to have been fastened upon the end-product, and a great amount of energy and painstaking research has been expended upon the attempt to unravel the mystery of mellituria from the chemical investigation of the synthesis of a glucose molecule along the back track. That the formation of sugar results, in part at least, from the recombination of portions of the broken-up proteid molecules has become a popular supposition. (Nebelthau, *Muench. Med. Woch.*, No. 22, 1902.) (Hesse, *Zeitschrift f. Kl. Med.*, Bd. 45, page 237.) Hence it would seem that the condition under which the food-stuff is started upon the process of digestion is worthy of some special attention in view of the possible effects of the condition upon the course of the changes which result in the glycosuria.

By the fortunate results of an attempt to relieve dyspeptic phenomena in a diabetic case, my attention was drawn to the study of the stomach in this disorder, and I have been much surprised to find how little material yet published has been readily available.

In the absence of direct experimental study of this point, due largely to the difficulty of establishing the necessary conditions,

clinical experience may serve as a useful guide; and in empiric fashion we may frame some estimate of a probable influence of gastric disturbance upon the later metabolism of food-stuffs in this disease.

The case-histories which I shall read to you are from patients seen in private practice, or for but brief periods of time in the hospital. These patients have shown such a remarkable response to measures directed to the stomach's local condition that I have become convinced of a hitherto over-looked importance of the conditions of the stomach in the treatment of diabetics. I am more convinced of this because the number of cases, while not great, seems to me enough and the results sufficiently uniform to exclude the idea of simple coincidence. Two of these cases were made the basis of a paper, of which I read an abstract last spring. In the several cases which I have added to this number, the regularity of results and the conditions under which they were obtained seem to me to exclude any other conclusion than that a distinct clinical importance is to be attached to the stomach-function in diabetes, and it is to this clinical relation of the stomach to the disorder that I especially wish to draw your attention.

The various forms of glycosuria and diabetes are classified according to the duration of symptoms and the limit of assimilation, or to tolerance manifested by the given individual to various amounts of grape sugar, starch, and, in starch-free diet, by the tolerance to quantities of nitrogenous foods consumed by the patient without the appearance of sugar in the urine.

The development of the severer from the milder form, and of the milder from the alimentary glycosuria, and the development of the alimentary out of the glycosuria *esaccharo* are discussed by many writers. It would appear that the development from the milder to the severer state is abundantly confirmed.

On this occasion it would be out of place to recount at length the laboratory experiments which have contributed so largely to our present idea of *diabetes mellitus*, or to dwell upon the theories advanced for its development.

Out of the great mass of material published upon this uncertain field, it will be especially pertinent to recall the experiments of Minkowski, and von Mering, of Pawlow on the relations of stomach and pancreas, Opie's studies of the pancreas, and Flexner and Pierce's reports of injections of various substances into the pancreatic duct. Although these latter experiments in no wise approach to normal conditions, they have a strongly suggestive

value. Moreover, it is of great interest to recall the pathologic findings in connection with concrements in the pancreatic duct, and it is desirable to note the anatomic structure of the pancreatic duct and of the bile-duct. In view of the frequent involvement of the bile-duct secondarily in catarrhal processes arising in the stomach, we wonder at the infrequency of the involvement of the ducts of the pancreas.

The known intimate association between conditions of the stomach and liver, in all their varying disorders, disposes us to think of some possible relation, direct or indirect, between a later disturbance of the glycogenic function of the liver and a preceding disease of the gastric membrane.

Upon this point a number of opinions have been expressed from which I quote as follows: Robin (*Bulletin de Gen. Thera. Paris*, vol. 141, page 607-608), discussing the case of a child with a dyspeptic glycosuria and its transformation into true diabetes, says: "I am therefore convinced that the intermittent glycosuria of the hypersthenic can in certain cases become permanent and change into a true diabetes which bears the hall-mark of its origin in the persistence of the gastric trouble and again in the favorable influence (though it be not decisive) of an antidyspeptic treatment."

That the excessive use of beer tends to develop, among other conditions, a *gastritis glandularis chronica* with motor insufficiency need not be more than mentioned here. Strümpell in an address before the Frankfurter Naturforscherversammlung in 1896 (*Berlin Med. Woch.*, 1896, page 1017), said: "All drinkers of beer show especially often the alimentary glycosuria. The excessive use of beer however is very probably also the cause of many cases of genuine diabetes, inasmuch as there occurs a gradual transition from the simple inability to consume large quantities of carbohydrates suddenly ingested, to the inability to consume the usual quantity of carbohydrates."

This statement is of much interest in view of the possible change of opinion by the same writer, for in his text-book of the previous year (*Lehrbuch, Specielle Path.*, 1895, vol. 2, p. 550) he wrote as follows: "Finally, whether primary disease-changes of stomach and of liver also can bring about the glycosuria is doubtful."

Another opinion more clearly inclining in the same direction is by Saundby (*British Medical Journal*, 1902, page 8). In writing of glycosuria and unusual forms of it he states: "All these cases included under alcohol, liver diseases and gastritis probably

have some connecting link which, could we discover it, would throw light on the etiology of glycosuria."

Teschemacher (*Deut. Med. Wochenschrift*, 1883, No. 6, and *Mittheilungen über Diabetes Mellitus*, ditto 1895, No. 17) in the article by Schütz, later referred to, calls attention to the fact that *diabetes mellitus* at times breaks out under the guise of an acute catarrh of the stomach, and he accordingly recommends repeated examinations of the urine for sugar in cases showing frequent recurring attacks of acute catarrh of the stomach presenting a stubborn resistance to treatment.

The occasion for repeated tests in the sense indicated would point to the writer's idea that the gastritis is antecedent in time to the later evident diabetes.

Similarly Loeb (*Schwalbe Jahrbuch*, 1897, page 305, *ibid* 37) has had the opportunity of observing a few cases of diabetes in incipency. "Frequently there is found only a small quantity of sugar in the urine and then only at times, and only gradually does the glycosuria become persistent; nevertheless a genuine diabetes need not arise from each such case."

Stern (*Medical Record*, 1897, vol. 52, page 873) has noted a prodromic stage in gastrointestinal disturbances with intolerance of carbohydrates, sometimes of hydrocarbons, often associated with hyperchlorhydria, sickening pain in the epigastrium increased by eating, and a dull pain in the hypochondrium.

Cantani (*Tratt. Ital. di Patol. e Terap. med.* Milano, part 1, vol. 14, page 126) finds catarrhal gastritis in 115, and other catarrhal affections of the chylopoietic tract in 55 other cases among 1,190 diabetic cases.

From a somewhat different point of view I wish to quote a statement by Ewald (*Klin. Verd.*, Berlin, 1899, vol. 2, page 480): "Certain diabetics pass for years as dyspeptics till some chance urinary test, or one undertaken in consequence of specific symptoms, emaciation, itching, polyuria, voracious appetite, caries of the teeth, ocular disturbances, and the like, establish the diagnosis."

This same paragraph is referred to by Schütz (*Wien. Med. Wochenschrift*, 1901, No. 20, page 970) with the comment that "this fact of greatest practical importance has received altogether too little consideration." This writer alludes to the fact of many diabetics in the absence of examination of the urine having been treated through long periods of time to their great disadvantage, as cases of gastric or intestinal disease. There is an excellent

summing up of observations by many writers upon the condition of the stomach in diabetes.

Motor insufficiency was the only regularly found objective abnormality of the stomach; chemical findings, so far as recorded, gave no regular behavior of the acidity of the gastric juice, usually normal or increased hyperchlorhydria; hypochlorhydria was found much less often.

Schütz himself calls attention to the fact in the case reported that a urinary examination had not been made until the patient came under his care, although the patient had been ill for a long period of time.

The case I report here is one in which I have had a similar difficulty, in that the case came to me without approximate knowledge as to when the glycosuria appeared. In this respect it differs sharply from the following cases which, I am able to state from personal experience, presented no evidence of diabetes in previous years.

Some four years ago a diabetic patient was referred to me by Dr D. P. Allen. There was loss of flesh, considerable thirst, and polyphagia. Gangrene had occurred necessitating the removal of three toes while the patient was under Dr Allen's care at Lakeside Hospital.

When coming under my observation the proportion of sugar was 5.2% in the 24 hours' specimen. The patient was a large, fleshy man of over 50 years of age and of nervous temperament. No other essential findings were noted save a catarrhal gastritis with hyperchlorhydria and motor insufficiency. Without thought of particularly affecting the glycosuria, lavage with creolin followed by a soda solution was begun, and a diet much more generous than that which he had previously had, was allowed. Under these measures the excretion of sugar rapidly diminished and soon entirely disappeared. The patient remained free from glycosuria for months, at last going under the care of a colleague, Dr O. T. Maynard, of Elyria, who kindly made repeated examinations and found sugar only once in the course of a year thereafter, and then after an unusual indulgence in a Christmas dinner.

This single case, while exciting my interest, would not have led me to present this article, but for a group of cases coming into my hands this past year, in some of which these unusual conditions existed.

In the following cases, by reason of having been while in active general practice in frequent and usual attendance for years

upon these patients for various disorders, in the course of which I made numerous urinary tests, I am able to assert that sugar was not found in their urine within six months in one case, and about a year in the other.

Case I: Mrs C., a housekeeper, 55 years of age, is a well-nourished woman. She complains of weakness, loss of flesh, thirst and hunger, and easy fatigue. There has been no serious illness in her personal history, but for some years she has been much troubled with gastrointestinal disturbances for some of which I have treated her, finding catarrhal gastritis the usual disturbance, with occasional involvement of the duodenum, slight icterus and constipation. She has also been at times under the care of others and has had a valvotomy for the radical cure of constipation. She is now troubled with this disturbance of the spastic type.

The patient shows exaggerated knee-jerks, slight tremor, occasional tachycardia and slight enlargement of the thyroid though not marked enough to attract notice until the neck is palpated. Graefe's sign is present, Stellwag's and Moebius' signs are absent. There is no exophthalmus, and the peripheral arteries are not thickened.

During my care of her previously (and I am informed by Dr T. C. Martin, while she was under his care) no sugar has at any time been found in the urine. A specimen examined October 28, 1902, the 24 hours' secretion being more than three quarts, showed large quantities of sugar, 8% by the copper reduction-test, and 7.8% by fermentation; there was no reaction for bile nor indican; the specific gravity was 1.028.

The test-meal showed good motor function of the stomach with positive reaction for free hydrochloric acid, but apparently in diminished proportions, while the scanty quantity obtained showed undigested meat fibers enveloped in tough, clumpy mucus.

The examination of the blood showed a very positive reduction with methyl blue in the Williamson test. The differential count of the leukocytes which numbered 12,500 in 1 cm. showed of polynuclears 750, eosin 3, small mononuclears 10, large mononuclears 372, transitionals 32.

The patient was not put upon a standard diet, but four grains of benzosol *t. i. d.* and alkaline water were prescribed. The diet included bread, mashed potatoes, corn-starch, arrow-root and tapioca; the restrictions were principally abstinence from cane sugar, and irritating substances like seed-coats and fibers and all raw fruits. Cold baths were also ordered. On November 3, the specimen of the 24 hours showed by Fehling's solution 2.8% of sugar and by fermentation 2.3%. On November 7, Fehling's solution showed 1.5% and by fermentation 1.3%. On November 26, the patient was feeling very much better; there were two quarts of urine in 24 hours and Fehling's solution gave .3% and fermentation .5%. On December 2, the specific gravity was 1.016; no reaction was obtained for sugar by copper nor by Nylander's solution, nor in the several tests made since that time. No sugar

was discovered by these methods in the examinations made on January 5, 14, 27, March 9, and April 17. On May 7, three hours after taking the Riegel test-meal, 15 cc. of stomach-contents showed the following in three layers: The upper third was mucus with food-residue, the reaction showing a total acidity of 66, of which 30 was free hydrochloric acid. The other physical findings have remained the same. Although she has experienced considerable subjective benefit from the use of cold sponge baths, the knee-jerks, tremor, tachycardia and Graefe's sign still remain unchanged. The patient throughout this period has taken quantities of starchy foods beyond the usual amount often indulged in by those who have no trace of sugar in their urine.

Case II: Mr H. has been under my own care very frequently, and has been a family patient of my father's for many years. I had occasion to make urinary examinations in his case on January 23, and July 24, 1902. In January he was suffering from a well-marked catarrhal icterus and at various times in preceding years has presented the same evidences of obstruction of the bile-duct from simple inflammatory processes apparently excited by rapid over-eating. The patient has suffered from eructations of gas, and a sense of load and weight in the stomach after meals and has, at various times, corresponding to the development of the duodenal catarrh, noticed the passage of clay-colored stools. There has never been good ground for diagnosing gall-stones. This patient has been unwilling to take a test-meal, and I have not strongly urged it upon him for various reasons such as obtain in general practice.

On December 8, four and a half months after the last test of the urine, he came to me complaining of some weakness, easy fatigue, and one week before he had noticed a suddenly increased thirst which had continued through the week. The examination of the urine was at once undertaken and a specific gravity of 1.039 was noted with the positive reaction for bile. Sugar was found in large quantities, by Fehling's solution 8.4%, by fermentation 8.5%. The blood showed a very positive reaction by Williamson's test. The meaning of the findings was explained to him and he was put upon Vichy water, cautioned to withdraw sugar from his food and to diminish the amount of starch. Knowing the difficulty of controlling this patient, I did not think he would stand at all well the sudden withdrawal of all starchy foods. The prescription in his case was one dram of resorcin in four ounces of chloroform water, a teaspoonful before meals.

The following day the 24 hours' excretion was over two quarts with a specific gravity of 1.036, and gave a large quantity of sugar, 6.25% by Fehling's solution and 6.4% by fermentation. One week later, the specific gravity was 1.029, and the sugar by Fehling's solution was 3.3% and by fermentation 3.1%. On December 23, the examination of urine undertaken in individual specimens showed quantities varying in the four urinations from .35% to 1%. On December 24, the 24 hours' secretion showed

by Fehling's solution .83% of sugar and by fermentation .86%. On January 13, .2% of sugar was found in 24 hours' secretion. In the five urinations on March 15 no sugar was found, and on May 5 none was found by fermentation, the specific gravity being 1.020, bile positive and urea 1.67%. The patient writes on this day that "the sample was taken at 6 a. m. and is the product of from 8 p. m. to 6 a. m." "For four weeks," he writes, "I have eaten bread, meat and potatoes and fruits as usual in my life. Yesterday I ate freely of wheat cakes and maple syrup."

Case III: Four years ago the patient Mr McD., of Medina, Ohio, was for a year or more under my observation during which time he suffered from a catarrhal jaundice with accompanying catarrhal gastritis. During that year I made several examinations of the urine, and sugar was not found at any time. On May 26, 1903, he again consulted me stating that he was feeling weak, became fatigued very easily and was depressed mentally. The patient also stated that his physician in the town in which he lived had a week previously found sugar in his urine (but the examination had not been made until the patient had been under treatment for some time). The duration of this excretion of sugar before coming was not less than one month, probably more.

The patient was slightly jaundiced, and thinking that he had a recurrence of his old difficulty I used the stomach-tube to ascertain the condition of the residue in the stomach and found a small amount of catarrhal mucus with markedly free hydrochloric acid, not enough however for the quantitative tests.

Examination of the urine gave a specific gravity of 1.026, albumin, bile, and sugar all positive, indican negative, and hyalin casts with granules. The quantity of sugar was 6.25% by Fehling's solution, and 6.9% by fermentation. The blood drop gave a very marked reaction with the Williamson test. The urea content of the urine was very low, only .67% being obtained by the Squibb's method. The patient declined the test-meal so that I am unable to report more definitely about this case with respect to the condition of the stomach. A 24 hours' collection of urine, from which a specimen was sent on May 28, gave as a quantity two quarts, specific gravity 1.035, albumin and bile positive, sugar 7% by copper and 6.44% by fermentation, urea 1.21%. No red reaction with ferric chlorid was obtained.

The patient was directed to use three drops of Fowler's solution three times a day after meals and drink Saratoga Vichy. He was cautioned to avoid the use of all sugar and starch, and four days later, after a rigorous exclusion of the sugar and starchy foods, the patient sent in a secretion of 24 hours amounting to three pints, the specific gravity of which was 1.007. Albumin, bile and sugar were all present. It contained 2.7% of sugar by Fehling's solution and 2.3% by fermentation. Mashed potatoes and a slice of bread were allowed at each meal, especial pains being taken to reduce all particles of food to a bland non-irritating form, all high seasoning was to be avoided, and rest

after meals was advised. He was also allowed a small portion of corn-starch and manioca. One dram of resorcin in four ounces of *aqua chloroform* was prescribed. A teaspoonful of this mixture was to be taken before each meal. On June 8 the amount of urine obtained was one quart, the specific gravity of which was 1.026; albumin, bile and sugar were positive, the sugar being .62% by copper and .62% by fermentation. The patient states that he "has been eating a ton of mashed potatoes a day and a little bread." By his rather generous estimate he meant that he had eaten three times a day a quantity of mashed potatoes about equal to a double handful. Peas and beans mashed through a sieve were added to his diet. On June 18, the quantity of urine in 24 hours was 40 ounces, and the specific gravity was 1.022. It contained a mere trace of albumin; no sugar was present. Similar tests were made on June 22, 26, 29, July 2 and 6, and no sugar was found.

He has eaten of mashed potatoes but has also taken corn starch, peas, beans, tomatoes, onions, manioca, and I suggested the use of apple tapioca pudding and similar preparations.

On July 9 no sugar was found by bismuth nor fermentation, nor on July 13, 21 and 28, nor in the several examinations since then, the last of which was made October 21. The patient is feeling quite well.

Case IV: A young man, 20 years of age, from Ashtabula, Ohio, consulted me on April 13, 1903. He was discovered to be passing eight quarts of urine daily last January after he had had an attack of ailment resembling the grip. (No better description could be obtained.) His best weight had been 117 pounds about January 1, in February, 105 pounds, and on April 13, 103 pounds. Previous to January 1, he had had a considerable amount of digestive trouble, frequent and severe distress being reported. Physical examination showed a slender, but, so far as the internal organs were concerned, an apparently healthy young man. Examination of the urine showed a specific gravity of 1.022, and the quantity of sugar amounted to 3.75%. The methylene blue reaction of the blood was very positive. A test-meal gave 80 cc. of stomach-contents which separated into three layers on standing, the top layer being one-third of the column, free hydrochloric acid, the total acidity 50. The patient went to the hospital and was confined to bed the greater portion of the day. A measured amount of exercise was allowed. Specimens of urine were saved, and lavage was begun for the catarrhal condition of the stomach using resorcin and followed by sodium bicarbonate. The treatment consisted of daily lavage and during his stay in the hospital he was kept upon the Van Noorden standard diet for two weeks no starch whatever being allowed. The quantity of urine on April 23, was 2700 cc., and contained 2% of sugar. On April 24, the quantity of urine was 3600 cc., 3.55% of sugar being present. April 27, 2500 cc. of urine was obtained and the quantity of sugar was found to be 3.75% by fermentation. Standard diet was now discontinued. On May 2, 2800 cc. of urine was obtained, and

the quantity of sugar was found to be 2.5% by Fehling's solution. On May 11, 1170 cc. of urine was obtained and contained 1.55% of sugar. On May 17, .6% of sugar was found by fermentation. The patient returned to his home and was under the care of Dr Geib. Lavage was continued, and mashed potatoes and bread were allowed. No sugar was found in his urine at this time, and frequent tests made throughout the following months showed no trace of sugar. During his stay in the hospital the catarrhal processes persisted until just before his return home. Lavage was continued until the disappearance of the catarrhal symptoms rendered it unnecessary. Test-meals have not been taken by Dr Geib but the thirst of which the boy complained and his great hunger entirely disappeared while the patient was at the hospital. The statement of the family and of the doctor all tell of the vigor and strength which the patient shows.

The case is of particular interest from the fact that the persistent use of the standard diet for two weeks did not materially reduce the sugar, which, however, promptly disappeared upon the institution of lavage, and the allowance of bread and mashed potato, with fats, and in addition in recent months a greatly increased quantity of finely ground starches.

Case V: C. S., a teamster, 22 years of age, had always had good health. His former weight was 170 pounds. He entered the hospital on November 16, 1903. Last spring he began to experience some slight dyspeptic distress, and then, with continued loss of flesh, thirst developed, the secretion of urine increased, and in May he was unable to work. His urine was not examined until he visited the dispensary of the hospital, at which time a large quantity of sugar was found, and he was sent into the hospital. His weight at that time was 128 pounds, a loss of 42 pounds. The Ewald test-meal, taken one hour after ingestion, gave 50 cc. of stomach-contents, of which 40 cc. was clumpy mucus, with a strongly acid reaction for hydrochloric acid. It was not determined quantitatively because of the failure to obtain the standard solutions the day before. The quantity of urine was a little over four quarts, but it was not accurately measured. Lavage was begun on November 27, and continued daily with sodium bicarbonate. The quantity of urine was 1900 cc., with a specific gravity of 1.040. By the copper reduction-test 5% of sugar was found, and by fermentation 5.2%. These figures represent the daily determinations until December 4 at which time the quantity was 2500 cc. and 5.6% of sugar by the copper test was found, and by fermentation 5.6%. On December 4, I ordered lavage twice daily with a more alkalin solution, using a teaspoonful each of sodium bicarbonate and baborate in a quart of water. The percentage of sugar promptly began to fall to 3, 2.8% and 2.4% until on December 8, the 24 hours' quantity of urine showed 1800 cc. and contained 1.6% of sugar. The patient gained six pounds in two weeks.

Case VI: Mrs H., consulted me at my office on September 17. At that time the urine contained a quantity of sugar which was very large, about 11% by the copper test. This patient was 23 years of age, was well till two years ago, though she previously experienced weakness. She had lost much flesh, especially six months ago, when there was a great loss in six weeks' time. She is now passing seven quarts of urine a day. There is no history of diabetes in the family, she never had serious illness since her childhood, but for the past three or four years she has always felt a load in the stomach with "bloating" as she expressed it, after eating. The following day the 24 hours' specimen of urine gave a percentage of 8.3 by copper, and 8.3 by fermentation. There was a marked diabetic reaction of the blood. The residue taken $3\frac{1}{2}$ hours after ingestion gave 300 cc. stomach-contents, showing great motor insufficiency, with 150 cc. mucus top layer, 70 cc. clear liquid, and 80 cc. food substance. Acid was abundant, free hydrochloric acid was 48, the total acidity was 78. On September 21, the Riegel test-meal gave 170 cc. stomach-contents, three layers with about equal proportions of mucus, clear liquid and food substance. Hydrochloric acid was 16, the total acidity was 56. After the use of lavage for three days with alkalin solution and salicylic acid, separately used, the quantity of urine was $4\frac{1}{2}$ quarts; the copper reduction-test gave 4.9% of sugar, and fermentation 5.52%. The specimen of urine on September 22, showed 5%, on the next day 4.1%, and on the following day 3.4%, while the influence of the lavage showed in a test-meal a considerable reduction of the residue, 100 cc. only being recovered, of which there was 5 cc. clumpy mucus, 20 cc. clear liquid and 75 cc. food sediment.

The patient meanwhile expressed the greatest relief from thirst and the excessive hunger and on September 25 was passing three quarts of urine in 24 hours, showing 2.7% of sugar. She now felt so much better that she thought she would carry on the lavage at home. The conditions there were not favorable, and the percentage of sugar in the specimens then sent in rose to 6 and 7, until she entered the hospital, about the middle of November, when 5.5% was found in the secretion of four quarts in 24 hours.

With lavage once daily and quiet not much impression was made on this patient until December 4, at which time the amount of sugar was 4.6%. Lavage with stronger alkalin solution was ordered twice daily. The quantity secreted and the percentage has diminished until, on December 8, the test for sugar showed 2.4% by copper. This last patient has gained $5\frac{1}{2}$ pounds in three weeks, and, like the other, expresses the liveliest satisfaction in increased strength and vigor.

To these last two cases I desire to draw particular attention as showing an apparently uniform excretion under given conditions until the more energetic lavage twice a day, with more alkalin solution, and no other changes whatsoever instituted, brings again a very sharp and decided diminution in the excre-

tion of urine and even a more decided diminution in the percentage of sugar obtained.

When one remembers that these patients are young people, not fleshy, with a clinical certainty of the persistence of the disorder through months and years respectively, that they are by no means on standard diet, and that these last favorable influences of the increased frequency of the lavage, the increased proportion of alkali in the solution used in each case in different wards is followed by such definite results, the apparent beneficent influence of the procedure becomes of striking suggestiveness.

In all these cases from the beginning of lavage there was an immediate and striking effect, especially upon the thirst. So great and so positive was this effect, and so regularly did it follow, that I am led to urge the trial of lavage of the stomach with alkaline solutions in all cases in which thirst is noted as a measure which will be found to contribute much to the comfort and relief of some patients.

No single patient has failed to speak voluntarily without a possible question of suggestion of the great relief experienced; even on the first day in some instances and by the second or third in each case in which lavage was practiced.

Moreover, not only was the thirst assuaged so that not unusual quantities of water sufficed for the patient, but the excessive hunger from which several suffered was very markedly influenced. This is the statement without suggestion in each case, and those who have to deal with this disorder know how great is the suffering of many patients from these two symptoms, sometimes the most annoying in the whole course.

The manner in which this is brought about is a topic on which opinion may well differ, but to me it has seemed that the hyperchlorhydria and the irritation of the membrane resulting from it, or associated with it, has supplied the peripheral stimulus which in the diabetic patient has produced thirst.

I have seen the same symptoms in cases of catarrhal gastritis in which no glycosuria has ever been detected, and relief followed the same measure.

The determination of sugar in each of the cases has been made quantitatively by the copper reduction and by the fermentation method, and also the bismuth test was used in the qualitative routine.

In these cases sugar was present in large percentage when the sugar was cut out of the food and glycosuria *esaccharo* is here

clearly eliminated. In each case sugar was present for periods of time and in percentage such as I have nowhere found classed as alimentary glycosuria.

While fully aware that the clinical history of these cases has yet to wait long periods of time before the observations can be considered as finished, we have in these histories up-to-date the positive observation of the preexisting and present catarrhal gastritis, and the suggestion due to the disappearance of the diabetic symptoms *pari passu* with the diminishing of the catarrhal phenomena in the gastric mucosa. Excessive thirst and hunger were overcome in striking fashion and with remarkable promptness.

The cases reported by McCaskey (*Fort Wayne Medical Journal Magazine*, 1899, p. 1) are of considerable interest in this connection and were followed out on the theory of gastrointestinal autointoxication with apparently favorable effect. This writer reaches a conclusion with which I heartily concur, *i. e.*, "that the direct treatment of the stomach is an important auxiliary to the diatetic treatment of diabetes, possibly rendering the restrictions less severe with less resulting impairment of the nutrition."

This statement is in full accord with that of Naunyn (Sam. Kl. Vort., Von Volkman, *Innere Med.*, vol. 4, p. 3150) who notes in these milder cases 2 or 3%, occasionally 5 or 6%, and in individual cases as high as 8% of sugar which still must be classed as of the mild type.

While noting that the treatment of these cases is a very grateful field for the physician, he calls attention to the fact that "the sugar may entirely disappear from the urine, the patient remain in good condition, and both physician and patient come to lay little significance upon the quantity of sugar remaining," and herein he points out a considerable danger in that the case may unnecessarily become a severe one. (This statement may be emphasized by reiteration of the opinion previously advanced concerning the progressive tendency of the lesser toward the severer forms.) "While it is occasionally possible by a more vigorous treatment to bring about in some of these cases an improvement which can rightly be called a cure, it does happen that the cases are brought to such a point that their metabolism can again take care of considerable, though not unlimited quantities of sugar; that with a mixed diet and a very mild regime they may live years without excretion of sugar."

In association with this well-established clinical point of view I desire to point out concerning the universal experience that in

diabetes very often a considerable gastric disturbance is exhibited, I nowhere find it dwelt upon as being usually of a kind which by its very existence tends to diminish the digestion of starch or render such digestion more difficult, and that the vegetables chosen for these patients are often such as irritate a catarrhal or hyper-sensitive stomach.

Riegel (Nothnagel, *Specielle Path. u. Therap.*, vol. 16, part 2, p. 948) shows that in the investigations of Honigman, Krause, Rosenstein, Gans, See, and Cantani there was no direct relation between hyperchlorhydria or achlorhydria and the quantity of sugar excreted. In such a consideration, however, we must remember that diabetes is a disorder of varied etiology, and that we are probably grouping under this term a number of disorders which have a common disturbance of metabolism, while the acidity of the stomach-contents is but one variable phase of the secretion from the catarrhal mucosa.

The fact that in a considerable number of experiments the normal stomach has been found not to be particularly sensitive to mechanical stimulus, so far as the peripheral terminations of the nerve which furnish the peripheral stimuli for secretion are concerned, does not at all weigh against the clinical experience that in diseased stomachs the nerve fibers, as well as nerve terminations, undoubtedly receive irritation of abnormal character productive of abnormal or excessive effects.

The diet which may safely be allowed to individuals of undamaged mucosæ is not to be judged from this physiologic success as clinically suited to patients in whom the mucous surface is demonstrably no longer in a physiologic state.

It becomes then clearly important in the choice of diet for the diabetic to select not simply according to the possibility of a chemical molecule furnishing raw material out of which the metabolism shall fashion glucose in a greater or less proportion by direct conversion or by indirect splitting and recombination, but we should also remember that the material ingested, though it be chemically irreproachable, may be by its physical characteristics a mechanical abrader and decided irritant to a membrane of abnormal sensibility, whether this abnormal sensibility results from nervous conditions or from local inflammatory processes.

Conversely, it is a matter of increasing clinical acceptance that many food-stuffs which have been excluded by reason of their chemical composition from the dietary of the diabetic are now included with advantage especially when supplied in the physical

form reducing to the least terms the irritation of the stimulus excited by them upon nerve termination or inflamed membrane.

The case of mashed potato is well in point, and what is true of the mashed potato will be true of starchy vegetables given in suitably small quantities in the *purée* form which by its minute subdivision prevents an undue mechanical stimulation of the gastric mucosa.

Grant that the cases reported in this paper represent the mild form of diabetes; the tolerance obtained for them in so brief a period of time for quantities of sugar in their daily diet, I think noteworthy. For individuals who were excreting as high at 8% of sugar per day, to have been in repeated observations quite free from sugar in the urine, eating with no more care at the table than people who have been once thoroughly warned by such experiences are wont to exercise, and still show no sugar, has not been the usual course of even the mildest cases under my observation, nor is it a commonly recorded experience. The statement of Naunyn is here most in point.

If the results which he indicated are to be more commonly achieved than has been the experience of the past, we should have no reason to feel that it is possible to neglect in our measures of direct treatment the existence of a catarrhal gastritis, especially in view of the intimate association as already alluded to between function of the liver and the stomach, and recent experimental knowledge of the pancreas.

An excellent statement of the accepted idea from one of our best texts says: "Diabetes affects the stomach in two ways, probably either by arresting its function through autointoxication or by producing a gastritis. The great thirst, polyuria, polyphagia, ocular disturbances, pruritis, emaciation, usually mean the existing gastric involvement."

This point of view commonly expressed toward gastrointestinal disorders in diabetes that these disturbances are the result of diabetic processes and their development is a *signum mali ominis* may possibly be amended in some cases with advantage.

Certain experimental results and pathologic findings afford at least a colorable support to this idea.

The studies of Opie (*Journal of Experimental Medicine*, vol. 5, No. 4, p. 397) indicate that the "islands of Langerhans" have a large part to play in the influence of the pancreas upon mellituria. As Opie puts it, "these islands are composed of cells having the same origin as those of the glandular acini forming structures

which are independent of the secreting apparatus and in intimate relation with the vascular system.

Of their function little is known because of their inaccessibility for experimental research. They seem not to be readily affected by inflammation proceeding from the duct. In several cases of diabetes they alone were particularly affected, but they do not show evidences of pathologic change in all cases of diabetes.

The idea that they are portions of the pancreatic tissues which are functionally active in the elaboration of starches through some process of internal secretion affords a very plausible and attractive working hypothesis. This has seemed to me particularly so in connection with this work when the experiments of Pawlow are brought into relation with the pathologic findings.

Briefly to recall the bearing of these experiments upon our subject, it is important to note the group of observations by which he demonstrates the influence of hydrochloric acid in the excitation of the pancreatic secretion. The introduction of acids into the resting stomach, the pancreas being quiet, produces an abundant secretion of pancreatic juice; and neutralization of the acid within the stomach produces a stop in this pancreatic flow.

The words of Pawlow from the English translation are as follows: "This powerful influence of acid upon the pancreas is one of the most securely established facts in the whole physiology of the gland. The acids are such strong stimulants of the pancreatic flow that by their means it can excite to activity of the glands more effectively than by any other. So much is this the case that in the laboratory the effect of acid has become the crucial test of the normal condition of the alimentary canal in this respect." He terms the acid "the specific excitant of the gland."

Further experiments show that this effect of acid is a reflex one and the peripheral stimulus which it produces takes place on the discharge of acid from the stomach into the duodenum.

These experiments demonstrate the effect of a nervous influence upon the tubular secreting portion of the gland. We can infer (with hesitation) the idea that a stimulus so effective in one portion of this very active gland is likely to extend its influence upon other portions of the gland whose cells so far as we may yet determine are of the same origin as those of the secreting tubules.

It is also desirable to note that if we have the specific excitant we have conversely its specific inhibitory agents. As for the pancreas acids and fats appear from these experiments to excite secretion when applied to the gastric membrane, it is equally apparent that solutions of the alkalies exert the inhibitory effect.

I cannot here refrain from quoting again from Pawlow's translated words the following paragraph: "I believe that the inhibitory influence of alkalies on the digestive glands which was here proven experimentally may furnish a basis for the following representation of their mode of action in producing healing effects. Catarrhal affections of the stomach are characterized by an incessant, or very protracted secretion of slimy, weakly acid gastric juice. Farther in many cases the affection begins with the hypersecretion; that is, an abnormal excitability of the secretory apparatus which makes itself evident in a superfluous and useless flow. The same must be conceived to happen in disorders of the pancreatic gland; at least, such a condition sets in after operations performed for physiologic purposes. It is, farther, justifiable to suppose that when an affection is once set up by this or that cause it may later maintain itself independently, for continuous activity has undoubtedly a harmful effect on the glands. The due nourishment and restoration of organs after activity proceeds best during rest. In the normal course of events, after a period of active work follows a pause, during which the latent work of restoration is accomplished. When, therefore, a remedy effectively restrains the excessive work of a pathologic condition, it may in this way contribute to the removal of the pathologic condition, and thus to a restoration of the normal state. In this consists, in my opinion, the healing effects of alkalies."

In this excellent statement of the great principle of rest for diseased parts applied to the digestive secretion by this brilliant observer lies a possible explanation of clinical facts which have been for a long time observed by the profession, and which I think are only more sharply drawn in the cases which I have selected for presentation this evening.

The favorable effect of the alkaline Carlsbad and Vichy waters upon the catarrhal conditions of the stomach have much to do with the production of physiologic rest for diseased organs. The use of opium here becomes more intelligible. The influence thus ascribed to these measures suggests possibly that the continued existence of glandular activity due to the irritation of nerve terminations by excessive acid secretion in the stomach, or of nerve fibers in a more active inflammatory condition, may be the cause of such changes wrought in some cases in portions of the pancreas as to establish a permanent and progressive change in their cellular structure and function.

But while this etiologic possibility is hypothetical the clinical fact has passed the basis of hypothesis, and I believe it may clearly

be stated that physiologic rest of the gland is to be approximated for clinical purposes by the measures indicated; and that the measures to be thus successfully used do not depend for their rational employment on etiologic relations determined by pathology alone, but upon the general principles of medicine to secure for affected organs the utmost possible physiologic rest. This applies particularly in view of the uncertainty as to cause of any given diabetic process.

From this point of view I feel myself justified in asserting upon the basis of clinical experience along lines undertaken without knowledge of the experiments quoted, but rendered more reasonable when brought into relation with them, that instead of regarding the stomach disturbances of trifling importance due to the existence of sugar in the blood, and therefore to be lightly passed over, these stomach affections are in many cases likely to afford a point of attack by which a degree of relief from distressing symptoms and prolongation of life and efficiency may be secured better than by the hitherto general indifference to the significance of the stomach disorders in diabetics.

This would seem a desirable procedure on purely empiric considerations, while awaiting the development of methods and farther research to establish the etiology and consequent rational therapy.

Observations Upon *Dementia Præcox*

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In trying to adjust cases of mental alienation to the various conflicting classifications of the older authors, we have all doubtless been much puzzled at times. Especially is this true of the cases showing more or less of the stigmata of degeneration, and in which a neuropathic or otherwise defective heredity can be demonstrated. Cases of so-called "acute mania" display wide differences in the symptomatic expression of their disorders. In some, disorientation is most marked, while in others of similar behavior recognition of the surroundings is evident, and there is little clouding of consciousness. Some maniacal patients show a high degree of disturbance in the emotional field, expressing freely their rapidly changing feelings of affection or hatred, joy or sor-

row, and acting accordingly; while others equally maniacal are devoid of all expression of emotion. So, too, there are many contradictory variations in the fields of memory and the association of ideas.

Likewise the depression of some so-called melancholics is based upon ideas that appear to them logical, while that of others is senseless and confused. In melancholia also there appears a wide difference in the ages of the patients, and as wide a difference in the various phenomena in the fields of consciousness, perception, emotion, memory and thought. In some hallucinations are present, while others have none.

Again, many of our paranoiacs show conditions not in accord with our ideas of that disease. Here is one, an asylum inmate for many years, still firmly convinced of the justice and truth of his contention, and supporting it by arguments that are lucid and logical. He shows no evidence of mental deterioration, no clouding of consciousness, no alteration of the emotions, no behavior inconsistent with his peculiar belief. Another, once counted a similar case, presents many evidences of dementia. His delusions have become incoherent, or have all but vanished. He is complaisant and incapable of mental effort.

Other so-called diseases have, also, presented anomalies which render their clear understanding difficult. For instance, katatonia has been regarded as a disease entity, instead of a condition which may develop in the course of other psychoses characterized by dementia, such as paresis and epilepsy.

Finally, the psychopathic conditions first appearing in the period of adolescence, including in this period early adult life—the period from 15 to 30—many of which are admittedly accompanied by some degree of deterioration, and do not tend to recovery, were formerly divided into various groups and given distinct names. Thus there was primary dementia, acute dementia, moral insanity, pubescent insanity, adolescent insanity, etc. In all of these the physical signs of degeneracy appeared frequently, and defective heredity could usually be established.

The classification proposed by Kraepelin is based upon the mode of termination of the various diseases, taking into account, also, to some extent, their etiology. It is ingenious and easily understood, and, while open to some objections, it gives a satisfactory working basis. Viewed from this standpoint the mania, melancholia and circular insanity of the older authors, with the confusion resulting from the discordant and conflicting symptomatology, disappear. Certain well-defined forms of maniacal

excitement characterized by great psychomotor activity, and certain forms of mental depression characterized by retardation and stupor, occurring mostly in active adult life, are grouped together and designated manic-depressive insanity. The characteristics of this group are their marked tendency to recover from the attack without permanent damage, and the liability of their recurrence. The maniacal and depressive forms have a tendency to alternate, and hereditary predisposition can usually be demonstrated. Melancholia proper is considered an involution psychosis purely, and bears no relation to the depressive forms of other diseases. To the group of insanities occurring in the adolescent period, due largely to defective heredity and tending to dementia, the name of *dementia praecox* was given in 1891 by Pick.

Viewed from the standpoint of the Kraepelin classification many of the difficulties of diagnosis and prognosis disappear. Mania and melancholia (in the old sense) are no longer disease entities, with complex and conflicting symptomatology, but are conditions which may appear in the course of different diseases. Furthermore, the anomalous and puzzling conditions, maniacal excitement, depression and stupor with delusions and hallucinations, so often seen in youth and early adult life, are but the early manifestations of a definite disease-process, whose chief feature is a dementia that is primary and characteristic. The essential feature of *dementia praecox* is dementia of a definite kind. Other conditions found early in the disease are but episodes. Sooner or later they are swallowed up in the one unfailing termination.

The objection has been raised by many that the disease as described by Kraepelin is too comprehensive; that dementia does not always show itself; that there are no characteristic symptoms; that it may appear first in middle life, or at a later period; and that there is no definite pathology. In regard to the last of these objections, there is little to be said. Contributions to the pathology of the disease have been made by Alzheimer, Nissl, Dunton, and others. In cases showing the katatonic symptom-complex, changes, described by Nissl as degenerative in their nature, have been found involving the neurones of the deeper cortical layers. The nucleus is swollen, the membrane wrinkled and folded, and the cell-body shrunken. It is true that these changes are by no means constant, and have been mostly found in cases running a rapidly fatal course; but it is also true that in many neuroses of well-defined symptomatology no definite anatomic basis has been determined. In regard to the objection that the disease may appear late in life, it is possible that such cases should be regarded

rather as involution psychoses appearing very early. According to Kraepelin more than 60% of the cases appear before the twenty-fifth year. In the hebephrenic form almost three-fourths of the cases appear before that age; in katatonia 68%, and in the paranoid forms only 40%. In general it may be said that the earlier the disease appears, the greater is the liability to a quickly supervening dementia.

Defective heredity has been found in about 70% of the cases. The disease should be considered as a psychosis of the evolution period of life. Patients who have successfully withstood the vicissitudes of childhood, break down under the larger responsibilities of early adult life, and suffer permanent damage. In many cases temporary improvement, and in a few apparent cures, result from proper treatment, but sooner or later relapses are likely to occur, and hopeless dementia finally closes the patient's life history.

The clinical history is exceedingly varied, yet there are certain fundamental symptoms. The objections on this score arise principally from a failure to recognize these fundamental characteristics. Three clinical varieties are described by Kraepelin, but the line of demarcation is ill-defined, and they are all part and parcel of the same process.

The onset is usually gradual. Friends tell of a change of disposition as the first abnormality noticed. The patient may have become irritable, depressed and morose without cause. He is hard to control. He may leave home at unusual hours and wander about all night. He spends money foolishly. He succumbs easily to the influence of alcohol and is then wildly excited. In contradistinction to the forms of real alcoholic insanity, "he is not crazy because he drinks, but he drinks because he is crazy." His sexual appetites may be increased and he uses no judgment in their control. He may show criminal instincts, and take valuables belonging to members of his family and pawn them, or give them away to strangers or casual acquaintances. He can no longer pursue his studies and fails to get along at school, whereas, according to the almost invariable story of his friends, he was formerly a bright student. He may become seclusive and a masturbator, or develop a fondness for lying in bed. Generally after a period of depression, delusions of persecution appear, and with them there are hallucinations of hearing and sight, more often the former. Such is usually the onset of the hebephrenic cases. In katatonia the mental disturbance is more pronounced from the start. Delusions and hallucinations are prominent symptoms, and muscular rigidity

with stupor, or even pronounced negativism may be present from the first.

In *hebephrenia* well-established cases present a characteristic picture. There is stunting and alteration in the *emotional field*. Patients are apathetic and show little or no interest in the visits of their relatives. All feelings of love and veneration are greatly altered. In advanced stages there may be failure to even recognize a relative, while at the same time the patient may greedily ransack pockets and packages for sweetmeats. Announcement of the death or illness of a relative produces little or no effect. Feelings of anger are usually persistent, and patients may, when all other emotional life has vanished, still fly into a violent rage upon slight provocation.

The second characteristic feature of the dementia of this affection is the disturbance in the *association of ideas*. Patients cannot think connectedly. The train of thought is interrupted here and there in an irregular way, and concepts, bearing no relation whatever to expressions just preceding, are common. This is more apparent in the letters of patients than in their speech. We are all familiar with the disconnected and rambling epistles which patients in our chronic wards are constantly giving us. It is peculiar that after toiling laboriously over a production of this sort, the patient apparently loses further interest, and does not inquire as to whether the missive was sent.

The behavior of these patients is inexplicable and another evidence of the disturbance of the association of ideas. If they pull out their hair, beat themselves, tear clothing, break window panes, or suddenly strike another patient, the action cannot usually be explained at all, or the explanation offered is far-fetched and incomprehensible.

The *mannerisms* of *dementia præcox* are not met with so constantly in other psychic affections, and are one of its characteristic features. In exaggerated form these are more commonly the accompaniment of the katatonic symptom-complex, but they are also met with in the hebephrenic form. Patients persist in performing actions in certain stereotyped ways. They tread a certain board in the floor in going to their meals; crawl under the bed before retiring; a door knob must be twisted under certain conditions; they eat in a constrained and peculiar manner, or dress and undress in strange fashion. They adjust the bed clothes about them in the same way each night. These actions constitute the stereotypy of authors, and are characteristic.

Often the senseless repetition of certain words over and over

(verbigerations) are noted; or the foolish repetition of the words of another person (echolalia); or the imitation of another's actions (echopraxia) are found.

The *attention* is difficult to attract. While the patients may have a fairly correct knowledge of affairs about them, the element of interest is entirely wanting. They are apathetic and indifferent and are aroused with difficulty.

On the other hand, in the field of *apprehension* there is usually, until the later stages, little disturbance. Orientation is usually fairly good. In an apathetic way patients realize where they are, and are cognizant of ordinary happenings around them. This condition can usually be brought out by questioning although sometimes with difficulty. Patients who ordinarily pay no attention to the physician's visits, will, when aroused, speak of changes in his apparel, tell of the bad conduct of other patients, and show considerable knowledge of their surroundings.

While the *memory* for recent events is not good that for the happenings of the previous life is surprisingly good. Patients who are apparently utterly stupid can often recall and describe the events of their childhood and school life, repeat verses learned at school, recall geographic facts, etc. A patient who seemed much demented, and was subject to maniacal outbreaks in which she tore her clothing, destroyed furniture, and resisted everything that nurses attempted to do for her—a typical case of so-called "chronic mania" and "secondary dementia"—could still recall stories from her reader, describe the farm on which she formerly lived, and give the names of the family physician and other personages. In the later stages of the disease, however, when dementia has become profound, and existence is merely vegetative, memory, with apprehension and all other mental attributes, vanishes.

These are the most important symptoms of the hebephrenic form, and they make up a picture that is characteristic. The combination of altered emotions and disassociation of ideas, together with unimpaired memory and relatively good orientation constitute a peculiar kind of dementia not found in any other psychic state.

The dementia of paresis differs from it in that the onset is later, there is clouding of consciousness and more or less complete loss of memory. If mannerisms and verbigerations occur, they are transient and unstable, and most important of all is the presence of physical signs.

In organic dementias, those of the involution period and

senility, and those following gross organic diseases of the brain, the age and the physical signs are of great importance. The dementia is characterized by clouded consciousness and loss of memory.

Neurasthenia is characterized by the absence of deterioration, the presence of hypochondriac symptoms which are coherent and not silly, and improvement under treatment.

In the *katatonic* form there is the added element of motor disturbance. As stated, the onset is usually marked by pronounced delusions and hallucinations of a depressive nature, gradually changing into varying degrees of stupor. Sometimes, however, the condition is one of katatonic excitement from the first. For some time previous the history may show that the patient has complained of headache, insomnia, or difficulty of thought. Delusions gradually appear, and they are mostly of a depressive and religious nature. The patient has sinned past redemption, has wronged his family or injured his friends. Women have become pregnant and are to be punished for their sins. Hallucinations of hearing are common and persistent. The voice of God directs all the patient's actions, and tells him not to bathe, or go out for exercise. Voices of his children call to him. A dead person is in the wardrobe in the next room. A receptacle for wraps in one of the wards was for several weeks an object possessing great fascination for a patient, because she insisted that the dead body of her lover was inside. To another one, everything that occurred was suggestive of death. Every strange man was an undertaker or medical student seeking subjects for autopsy or dissection.

The delusions gradually assume a more grandiose form, and usually become incoherent and vanish as the characteristic symptom of katatonic stupor—negativism—develops. Negativism, preceded often by a sort of muscular rigidity, in which the patients will assume awkward and uncomfortable positions, and maintain them for hours, is very common. According to Kraepelin's view, it is a condition in which every normal impulse is at once met and overcome by one compelling the patient to do the opposite. These patients are the "resisters" of our wards. They will neither sit nor stand when told; they resist dressing and undressing, and they often refuse food. They close their eyes and mouths tightly, and avert their faces. They may even retain their feces and urine, and allow their mouths to fill with saliva. Yet they are conscious of their surroundings, will eat greedily if unobserved, are caught furtively peeping at the physician, and

will dress themselves if left alone. The condition of negativism may, at any time, give way to one of passive nonresistance—the “*ceres flexibilitas*” of Kraepelin. Arms and legs may be molded into all sorts of uncomfortable and awkward positions, which will be maintained indefinitely. Now, also, verbigerations, echolalia and echopraxia may appear. The invariable reply of one patient of mine to all questions was, “Down below Summerfield.”

The stage of katatonic excitement usually follows that of stupor, although the latter may be continued indefinitely. The condition is one of motor activity and maniacal excitement. Patients may display homicidal tendencies, or at least be exceedingly careless of the lives of others. They shout and sing in an incoherent way, destroy their own and others’ clothing, tear up beds and break furniture, pound the door and assault other patients. Their habits are filthy and they are noisy and abusive. They perform all sorts of impulsive and meaningless acts. In some cases, this condition may exist from the onset of the disease.

The cardinal symptoms noted in the hebephrenic form, *viz.*, the stunted emotional attitude, the disassociation of ideas and the inattention, together with a surprisingly good memory and slight disorientation, are all present but may be masked by stupor, negativism or excitement. After the subsidence of these conditions, however, it is usually found that patients have a fairly clear idea of events that have occurred. Usually the reasons assigned for their behavior are absurd or incomprehensible, but not always. A patient of mine who had been admitted in a depressed and hypochondriac, but very loquacious condition, lapsed after a few days into katatonic stupor, with some degree of negativism. For some months she refused absolutely to talk, and had to be fed by hand. After she had improved to a certain extent, she informed the nurse that she had been silent because I had told her to “keep quiet and take a good long rest.” As a striking example of stereotyped speech, this same patient will reply now only after considerable urging to speak, “Oh! I am spoiling you people.” She refuses to explain her meaning. Another woman admitted in profound stupor, took no apparent notice of her surroundings for several weeks, and required feeding by hand. After passing through this stage, she told me that she always wondered why I made a daily examination of her pupillary reflex. These patients are often caught furtively peeping around corners when they think they are unobserved, and sometimes they smile a little in spite of themselves at jocular remarks. In most instances, the

conditions of negativism and excitement gradually disappear, and the patients pass into a state of more or less profound dementia.

The greatest difficulties of diagnosis occur in the differentiation of the depression with stupor of *dementia præcox*, from the depression with retardation of manic-depressive insanity. The age is of some importance and the history of previous attacks is of still greater. In retardation there is much less resistance to passive movements, while the production of pain, as by pricking, is actively resisted. On the contrary, in negativism passive movements are actively resisted, while percepts of pain produce simply a withdrawal from contact. In the emotional field, instead of the stunting, which is characteristic of *dementia præcox*, there is intensification of the emotions. In the manic-depressive form also orientation is much disturbed. The early appearance of hallucinations speaks for *dementia præcox*.

When a patient is first seen in the condition of katatonic excitement, the differentiation from the maniacal forms of manic-depressive insanity presents difficulties. Here, too, the age and history may account for much, although mania may appear early in life. The same cardinal symptoms—alteration in the emotions, disassociation of ideas, and absence of disorientation must be remembered. In the maniac, consciousness is clouded and orientation is poor, but the emotions are easily excited. In katatonic excitement the content of speech is introspective, and bears little relation to the patient's surroundings, while the maniac's activity is only limited by his confines, the flight of ideas is constant, and the subjects talked about are suggested by the surroundings.

The alcoholic insanities are separated by the history and the great predominance of hallucinations.

True melancholia should present few difficulties. Physical signs are present; the age is of great importance; hallucinations are not present; and there is no disturbance in the emotional field. Delusions are often apparently well-founded, and are freely and lucidly explained.

Concerning the *paranoid* type, little need be said. It is more common in women and appears later in life. The onset is usually gradual. Depression with delusions of a prosecutory nature may appear at a menstrual period, or following abortion or labor, or in lactation. Patients become suspicious of husband or wife; think their friends are working against them; misconstrue the actions of others; electric currents are passed through their bodies; people practice hypnotism upon them; articles in the papers are directed against them; and their neighbors annoy them

in various ways. The delusions constantly vary, and eventually become woven together in a more or less coherent whole, the keynote of which is persecution. With them are often combined grandiose ideas. Patients become potentates of various grades, social leaders, authors and the like. They cannot, however, support their peculiar ideas with lucid and logical arguments; and because of this inability to sustain their positions, they resort to brow-beating tactics, fly into tantrums of rage, rebel openly against their incarceration in hospitals, and insist there is nothing the matter with them. In the active stage of this psychosis, its victims constitute, in my opinion, one of the most troublesome classes of hospital inmates. They are quarrelsome and rebellious, and do not submit readily to discipline. They comprise many of the cases which were formerly included in the designation inhibitory insanity.

Gradually their delusions fade away and the characteristic dementia appears. Or they may suddenly pass into a cataleptic state, which is identical with the katatonic condition. In some, dementia comes on quickly, leaving them with only the remnants of their former delusions; while in others, the deterioration is longer delayed. In all the prognosis is hopeless, while according to Kraepelin, in the katatonic form 13% seem to recover and in the hebephrenic form only 8%. Probably in all forms there has, however, been some slight damage—a psychic scar indicating some degree of deterioration.

The demented of *dementia præcox*, during the middle stages of the disease, after the subsidence of episodes of onset, and before the dementia has become profound, constitute a principal proportion of the working force of any large insane hospital. They are, for the most part, able-bodied and physically well. Their behavior is usually good. Mannerisms and stereotyped actions and words are common. At times they have periods of excitement and do impulsive acts, and at times their habits become unclean. They are incapable of acquiring knowledge, but perform fairly well the simple tasks of the laundry, the kitchen and the farm. As age advances and dementia becomes more profound, they gradually fall from the ranks, and drift into the infirm wards. Their end comes usually as the result of bronchopneumonia, tuberculosis, or enteric troubles.

In summarizing, let us remember that the essential feature of *dementia præcox* is dementia; that this dementia is proper to and characteristic of the disease, and that it is a dementia that is primary and not secondary. It is present from the beginning

of the disease, although its recognition then may be obscured by the episodes of the onset, which are for the most part transitory. The disease is one involving the life history of the patient, and though there may be remissions, and even apparent recoveries, relapses are the rule. Finally, let it be remembered that the line of demarcation between the various forms is ill-defined, and that the patient may at any time pass from one to the other.

General and Special Methods in the Postmortem Examination of the Brain and Spinal Cord

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The methods to be discussed here are those employed in the pathologic laboratory of the Ohio Hospital for Epileptics, and, while they follow in most particulars the prevalent practices, certain modifications have been introduced which may perhaps be worth recording. They will be presented in the following order: (I) The removal of the contents of the cranial cavity and the immediate disposition of the same. (II) The removal of the spinal cord and ganglia and their treatment. (III) The restoration of the body.

I. The instruments necessary for the examination of the cranial contents are few in number: a cartilage knife, a long narrow knife, chisel, a hammer with a hook, dissecting forceps, scalpel, and saw. The saw that is used by us is the one that is used to uncover the spinal cord and will be described under that section.

With the body in the supine position, the head hanging over the end of the table and with a block under the neck, an incision down to the bone is made over the vault of the skull from the one mastoid process to the other. When the head contains an abundant growth of hair, and, particularly in women, the hair is carefully parted along the line to be incised before cutting through the scalp. If the hair is very short and cannot be easily parted, it is often advisable to cut the scalp by thrusting a narrow knife with its back to the skull through the skin at the starting point and shoving it in the desired direction. In this way the hair is not cut. Here, also, for cosmetic reasons, the incision should be made as far back of the ear-to-ear line as possible in order that

it may be hidden when the toilet is complete. Then each half of the scalp is stripped off the skull with the fingers, the one part anteriorly to the supraorbital ridges, and the other posteriorly to the occipital protuberance. The temporal muscles need not be removed with the scalp. If the scalp sticks to the skull it is to be cut at the adhering places.

Then the line of the saw cut is to be marked. This can be done by a brush holding some of a solution of methylene blue or of fuchsin, but it can be defined sufficiently well by scratching on the bone with the cartilage knife and by cutting through the temporal muscles. The saw cut used is not the circular one, but the one with an obtuse angle over the ear (Figs. 2 and 3). The principal object in the choice of this angular bone incision is the

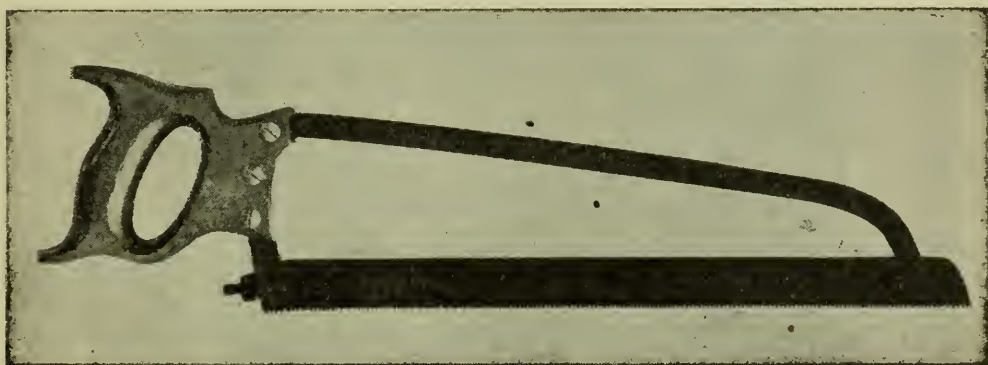


Fig. 1. The modified saw used for removing the skull cap and for severing the arches of the vertebra in exposing the cord.

advantage afforded by it in restoring the skull cap. Some authors advise cutting the posterior half of the skull in such a way that there will be, in addition, an angular piece of bone projecting upward from the occipital bone. This is apparently a good feature, for it would prevent any lateral movement of the skull cap when it is replaced; but the sharp point projecting upward from the occipital bone might interfere with the operator in taking out the brain.

Having marked out the line of incision, the skull is to be sawed. With the left hand of the operator protected by a towel, and with an assistant likewise protected to steady and turn the head, the bone is divided along the line marked out. Since the dura should not be cut into, it is well to saw not quite through the inner table and then to use a chisel and hammer to completely sever the skull cap. If there is a suspected fracture of the skull bones, the dura must not be spared, and the saw cuts should be made entirely through the bone. When once the calvarium has been freed all around, it can be gently pulled off by using the

hook on the end of the hammer inserted into the cleft produced by springing the skull-cap upward with the chisel.

Adhesions sometimes give trouble at this stage. Under these conditions, if the skull cap will not come off by pulling with the hook over the divided frontal bone, it may do so by pulling anteriorly with the hook over the severed occipital bone. If this procedure is not successful, the dura should be removed with the skull-cap. This is easily done by cutting the dura around the line of the saw cut and especially at its anterior attachment to the *crista galli*. Then it can be pulled off the brain, the operator looking all the time for adhesions other than those normally found

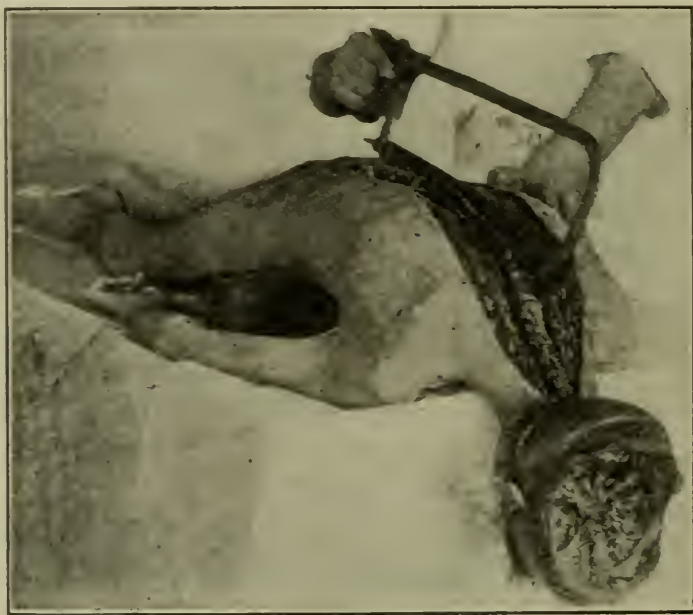


Fig. 2. Showing the saw in use in exposing the cord. The saw portrayed here is not the one in use in our laboratory, but was used at the time the picture was taken as our modified saw was at that time at the manufacturer's.

at the Pacchionian bodies. If the dura is adherent to the brain also, it should be pulled off if it can be done without damage to the brain, and the spots of adherence noticed. If the brain will be damaged by stripping off the adherent dura, this can be cut off around the places of adhesion and left with the brain. Occasionally one finds the dura adherent not only to the skull-cap, but also to the brain in such a way that the dura cannot be cut around the adhering places. Under these conditions the skull-cap, dura, and brain must be removed *en masse* according to the technic to be described for removing the brain.

If the dura is not fast to the skull-cap, the latter is removed exposing the brain in its hard covering. At this point we make

our bacteriologic examination. A fold of the dura is picked up with the sterile end of a forceps, a spot is seared, and an opening is made through the burned area with the heated point of a knife. Through this opening a platinum loop is introduced, pushed around in various directions and proper media inoculated. After the dura is removed the same procedure is followed to make cultures from beneath the piaarachnoid. Anticipating our work a little, we might add here that after the brain has been lifted from the base of the skull, inoculations are made from the basal fluids by plunging a hot platinum loop through the soft coverings into the desired places. Abscesses, spots of softening, etc., and the contents of the ventricles are examined by inoculating media directly from the lesion after removal of the encephalon. The bacteriologic work having been completed upon the dura, the latter is incised around the sawed edge and at its anterior attachment and stripped from the brain. If the dura is adherent to the brain, it is to be removed with that organ.

In children up to the age of seven, the dura is normally adherent to the skull-cap. In these cases, except very young infants and fetuses, after the scalp has been stripped off, the skull-bones are entirely sawed through, the dura is cut and removed with the calvarium. In young infants and fetuses, after turning aside the scalp, the skull is best opened by cutting with the scissors along the sutures through the dura and tissues uniting the bones, down to the base of the skull, making five flaps which can be turned back to restore the head. Along the sagittal suture the scissors should cut on each side of the *falx cerebri*. To facilitate turning down the flaps, the bases of them may be divided at their outer extremities. Then the brain can be removed as will be described.

In children, Griesinger has a novel way of removing the brain, which may occasionally be useful. He makes a circular incision through the skull, but, instead of stopping when he is through the bone, he saws through skull and brain as if they were one piece.

The convexity of the brain having been exposed, and with an assistant to support it throughout the manipulations leading to its final removal, the operator inserts his fingers over the frontal lobes, raises them slightly, and loosens the olfactory lobes. The head is then tilted further, causing the brain to sink and to reveal the optic nerves, and, after these are cut, all the exposed nerves and vessels are severed close to the base of the skull, the operator cutting toward the bone. When the tentorium comes into view,

it is carefully incised, the knife or scissors hugging the bone. The remaining nerves and vessels having been divided, the operator inserts a long thin knife through the *foramen magnum* and cuts off the spinal cord with one sweep of the knife as low down as possible. The vertebral arteries sometimes hold the severed ends of the cord together, and these should be carefully cut off. As much of the vertebral arteries as is possible should be taken



Fig. 3. Slee's method of restoring the calvarium. The bandage drawn across the base of the skull and crowded into the saw cuts on each side.

with the medulla, for a reason which will be mentioned farther along. The need of an assistant to support the brain is almost imperative, for otherwise the unavoidable moving and jolting of the organ may result in the tearing out of the nerves at their attachments.

The brain is now weighed, examined as a whole fresh object, and then immersed in a solution of 10 parts of 40% formaldehyd (formalin) to 100 parts of water, which is the strength of for-

malin solution we use in all this general work. To prevent distortion of the encephalon we have derived most satisfactory results from the ingenious suspension method of Retzius,* which is carried out as follows: While the brain is still upon the scale-pan, a string is passed beneath the basilar artery. The twine should be long enough to be tied around a support placed across the top of the jar or other container in which the brain is to be immersed. From the scale-pan the brain is carried to the vessel containing the formaldehyd solution and carefully lowered. When it sinks into the fluid, the string is tied to the support across the top of the container in such a manner as to cause the brain to be suspended without touching the bottom or sides and still be entirely immersed. The more of the vertebral arteries removed with the medulla, the more dependence can be put upon the strength of the attachment between the basilar artery and the pia. It is not our practice to strip the piaarachnoid from the fresh organ as many pathologists do as a routine measure. This can as well be done later, and it is often desirable to study the pia in *situ*.

Next the pituitary body is taken out and preserved in a formaldehyd solution. Its removal is easily effected by detaching the *dorsum sellae* with the chisel and hammer, after which its dissection follows. When the work has progressed thus far, all that remains to be done in our ordinary autopsy is to remove the Gasserian ganglia. The dura over them is dissected off and the ganglia are removed from their close attachment to the base of the skull. For a special study in which Dr Ohlmacher is engaged, one of the Gasserian ganglia is preserved in 95% alcohol and the other in the formaldehyd solution. Before leaving the head, the dura around the *foramen magnum* is cut through to facilitate the removal of the cervical portion of the spinal cord.

In some special cases, and particularly in inflammatory diseases of the brain and its coverings, it is desirable to examine the nasal, pharyngeal, and the accessory cavities. When this is indicated we resort to Harke's method. This consists of an antero-posterior splitting of the base of the skull in the median line by a saw and broad chisel, after sufficient dissection of the scalp flaps. It is seldom necessary to continue the ear-to-ear incision downward. Harke advises the use of a key-hole saw, but we use the saw about to be described. After free dissection of the anterior

*Dr Ohlmacher informs me that he became acquainted with the Retzius method through Professor L. F. Barker, in whose laboratory (Hull Anatomical Laboratory of the University of Chicago) it was employed. Professor Barker writes that he believes the method to be original with Retzius, in whose monograph, "*Das Menschenhirn*," it is described as having been used to prepare the brains studied by that anatomist.

flap to the level of the orbital ridges and bridge of the nose, and of the posterior flap to the base of the occipital bone, the base of the skull is split with one saw cut simultaneously invading the frontal and occipital bones, made possible by the long blade of the special saw adopted in our laboratory. By properly handling the saw the division of the bones can be so far completed that a moderate use of a broad carpenter's chisel completes the opera-



Fig. 4. Slee's method, second stage. The skull-cap replaced and the ends of the bandage brought over the dome where they are to be pinned.

tion, and this instrument can also be used for prying the several bones apart and fully exposing the structures of the nasal and pharyngeal cavities with their accessories.

To examine these accessory cavities, some pathologists remove a piece of bone shaped like a truncated pyramid, the sides of which lie outside of the cavernous sinuses, the base across the orbital plates of the frontal bone and the ethmoid bone, and the top across the clivus. For this purpose a drill and key-hole saw are employed.

Having carried out the Harke method, the work upon the

head is completed except for the restoration, which is postponed until the spinal cord has been removed. The body is then turned around to present the back, and a block is placed under the abdomen so as to cause the back to arch upward (see Fig. 2).

II. The instruments necessary for the removal of the contents of the vertebral canal are as follows: an autopsy knife, a strong cartilage knife, a hook, bone forceps, a long narrow knife, dissecting forceps, scissors, and a saw. Special mention is made of the saw, which is here described for the first time. It was modified by Dr A. P. Ohlmacher and adopted by him for the purpose of expeditiously exposing the spinal cord. It is an ordinary 16-inch butcher's saw with an iron frame that slopes downward and makes a small curve at its distal end, where a heavy, special 17-inch blade, $1\frac{1}{4}$ inch in width, projects about an inch (Fig. 1). This permits one to saw into corners and recesses while at the same time allowing the use of a long, strong, and heavy saw such as this is. The blade is made of this width so that it will stand off about $\frac{5}{8}$ of an inch below the lowermost parts of the frame. The latter feature is of distinct advantage in preventing riding of the saw while cutting through the spinal arch. The saw-teeth are set for cutting bone. This same instrument is used to saw the skull in exposing the brain and to split the base of the skull for Harke's method. No chisels or hammers are used in removing the cord, for Van Gieson has demonstrated that misleading artifacts are too often the result of their violence. For the same reason the cord is preferably removed through a posterior incision, instead of anteriorly after chiseling away the bodies of the vertebrae.

A long incision is made through the skin over the line of the spines of the vertebrae from the occipital protuberance to the promontory of the sacrum. The skin retracts and reveals the fascia and the muscles on each side of the spines. A long cut is made through the muscles down to the laminae on each side of the spines, the entire length of the skin incision, and the muscles then cleared from the laminae beyond the articular processes of the vertebrae. When this has been done the saw cuts are to be made on each side of the spinous processes and through the spinal arch. The saw should not cut directly downward, but downward and inward. All of the vertebral arches are to be sawed through from the atlas to about the second or third lumbar. When all the laminae have been entirely severed, the ligaments holding the lowermost vertebra attached are cut through by a strong knife, and spines, laminae and all are detached in one piece. Van Gieson

recommends testing the spinous processes manually one by one after finishing sawing, and, if all are freely movable, the posterior arch may be torn away. If they are not freely movable, the saw is to be used again. Occasionally, when the sawing of the axis and atlas is left to the last, these are cut through by the saw with difficulty, because they are then loosely attached. In this case the axis and atlas may be divided by the bone forceps. There is little danger of injuring the cord in this situation because there is abundant room between it and the arches of these vertebrae. In very young infants and in fetuses the posterior arch can be cut away by strong scissors.

When the cord has been uncovered, and after cultures in special cases have been made by picking up a fold of dura, searing through it and obtaining some of the subdural fluid, the cord is severed at the *cauda equina*; and with a forceps to grasp the dura, which is detached so as to make a protecting membrane, the cord is dissected from the spinal nerves and freed from its attachments to the spinal canal by a long, narrow, sharp knife. Special care should be taken not to bend or twist the cord, nor to pull it too hard, for artifacts are often the result of such mistreatment. Some little difficulty is met in freeing the upper end of the cord. To help overcome this obstacle we repeat what has been said before about cutting the dura around its attachment to the *foramen magnum*, and with the skull cavity open, the cephalic end of the cord can be loosened from above.

The cord having been removed with its coverings, it is laid flat upon a table in a straight line, the dura carefully incised its whole length in the median line and turned out laterally to the attachment of the nerve roots. Then the cord is to be turned over and the process repeated on the opposite surface. Having laid the cord bare, it is now to be hardened in the formaldehyd solution. This can be done by putting the whole cord into an inch glass tube of sufficient length filled with 10% formalin and with a cork in each end. Van Gieson recommends cutting the cord into small segments, not cutting through completely, and curling the whole into a spiral on cotton; but he also points out how the white matter swells and protrudes whenever the cord is incised. Therefore, we cut the cord as little as possible, usually dividing it into three approximately equal parts, and immerse these in a jar filled with the formalin solution. While putting the cord pieces into the jar they can be kept from rolling up by tilting it slightly, thereby making the sides to act as a support, and when

the cover has been securely fastened to the jar, it is laid upon its side for a few days.

When the cord has been disposed of in the above described manner, we dissect out a number of the intervertebral ganglia, and put some into 95% alcohol, and others into the formaldehyd solution.

At this stage it is well to point out that so far as fixation of the fresh tissues is concerned, only the general method has been mentioned. For special purposes and to study special portions of the central nervous system, appropriate pieces are fixed in such agents as 95% alcohol, Zenker's fluid, corrosive sublimate, Ohlmacher's sublimate-acetic alcohol. The fresh tissues are also examined as fresh objects and sectioned on the freezing microtome.

III. It is our practice to be very careful about the restoration and toilet of the body. When the cord and ganglia are out, the groove left is carefully sponged out and tightly packed with cotton to guard against leakage of blood caused by subsequent handling of the body. The posterior incision is now sewed by the usual underhand base-ball stitch. Strong linen thread or strong twine must be used for closing this cut, and the stitches must be carefully placed over the upper thoracic and lower cervical regions, for here is where the tension is greatest when the body is manipulated.

Slee's method of restoring the skull is used. The bone cuts at the angle above the ear are continued on each side for about an inch so that they cross. After the cranial cavity has been carefully cleaned, a wide bandage about four feet long is stretched across the open base of the skull and one edge of the bandage crowded into the anteriorly continued bone cut and the other edge into the opposite saw cut. The cavity of the skull is then packed with cotton,* the calvarium replaced, and the ends of the bandage brought over the top of the skull and pinned on each side. (Figs. 3 and 4 illustrate the stages of Slee's method.) Then the scalp is brought into its original situation and the incision sewed.

In those cases in which the accessory cavities have been examined according to Harke, Dr Ohlmacher has devised a slight modification of Slee's method of restoring the skull. The bandage is stretched across the base of the skull and crowded into the bone cuts as mentioned above. That part of the bandage which hangs off from the sides of the skull is then torn into halves

*In infants' skulls, when the bone flaps have been turned down to expose the brain, a bag of sand or sawdust is the best to fill up the cranial cavity.

longitudinally and the anterior half brought back over the open skull and tied, thus holding the halves of the skull in apposition. Then after the cranial cavity has been filled with cotton and the skull-cap put back into position, the posterior half of the bandage is brought over the calvarium and pinned as described above.

Finally, the body is to be carefully washed, and such further steps in the toilet as shaving, cutting or combing hair may be entrusted to well-trained helpers.

The following is a list of the more important books and articles consulted:

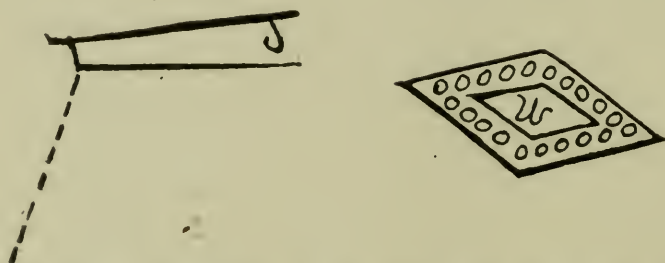
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The Passage of an Open Society Pin Through the Intestinal Canal of an Infant Nine Months Old

BY H. D. PETERSON, M. D., KELLEY'S ISLAND

In the October number of the CLEVELAND MEDICAL JOURNAL, Dr Hunter H. Powell reported a case of a boy 10 years of age swallowing and successfully passing an open safety-pin.

A few days after (October 18, 1903, 3 p. m.), reading Dr Powell's report, my child, while lying on her mother's lap, pulled from her dress a J. C. Wilson Medical Society pin and swallowed it. While choking I ran in, turned the child over and putting my



finger down her throat, could just feel the pin; she swallowed it and it passed into the stomach. In my haste I gave her an emetic from which she vomited several times but did not expel the pin; fortunately no bad effect came from the vomiting.

Thus far the diet had consisted only of modified Pasteurized milk which left very little residue in the bowel. I immediately began stuffing her with bread and the inner bark of *ulmus fulva* (slippery elm) for its demulcent effect; being thick and tenacious it remains practically unchanged during its passage through the intestinal canal and tends to engage any foreign body. The

bowels acted daily and on October 22, at 8 o'clock a. m., the pin was noticed in the rectum. A glycerin suppository was inserted and it passed without further difficulty. During the passage of the pin the child seemed as happy and well as ever.

The pin is 3 cm. long and the extreme ends are nearly as sharp as the pin itself, which is $2\frac{1}{2}$ cm. long and when open forms an angle of 105° with the shaft. The pin was of good gold and set with 24 pearls and was practically unchanged by the intestinal secretions.

This is simply another illustration of the importance of not using cathartics, but points out more clearly the value of stuffing, and the value of slippery elm as a demulcent.

In the October number of the *Therapeutic Gazette* is reported the following case of gastrotomy for foreign bodies, described by Dr Monnier at the Academy of Medicine, Paris:

A young man 22 years of age, suffering from epilepsy and melena, had sharp pains in the left hypochondrium accompanied by crepitation on pressure. An operation was performed and eight teaspoons from 8 to 15 cm. long, a piece of pronged fork, a letter file 12 cm. long, two sharp points 14 and 7 cm. respectively, a needle 6 cm. long, a knife-blade 5 cm. long, a piece of comb and a key 4 cm. long were found. Altogether they weighed 230 grams, and no ulcerative lesions of stomach were present.

It is remarkable what the stomach and bowels can accommodate without producing ulceration.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Neuralgia: C. H. Frazier, in the *American Journal of Medical Sciences* for December, states that trifacial neuralgia is probably in about 20% of the cases amenable to treatment other than operative. In some cases the disease has a tendency to run its course, usually reaching its height in five or six years, and then exhibiting a tendency to spontaneous cure. The medicinal treatment consists, first, in the removal of all predisposing causes, as malaria, anemia, exhaustion, or any peripheral irritation, such as a carious tooth, or antral disease. Secondly, the use of drugs, and the drug which is, *par excellence*, the most efficacious, especially so in the exhausted and anemic state, is strychnin. In cases of but one or two years' standing, strychnin properly administered will arrest or control the disease almost invariably. In order to obtain this result the drug must be administered in heroic doses, and the patient must be kept under the closest observation, and should be confined to bed. The remedy is administered hypodermically once daily, in gradually ascending doses, until at the expiration of two weeks the physiologic limit is reached. Thus beginning with one-thirtieth of a grain daily the dose may be increased to one-tenth or one-eighth, or higher, and when the maximum dose is reached it should not be given oftener than

once on alternate days. After the pain has entirely disappeared the drug should be gradually withdrawn. As adjuvants to this treatment rest is regarded as of the utmost importance, and iodid of potassium and the tincture of chlorid of iron are regarded as more or less helpful. It is perfectly proper and justifiable to give medicinal measures a fair trial for a year at the utmost, and then if the attacks are very frequent, severe and uncontrollable, operative intervention is the only hope of relief.

Hyoscin: *American Medicine*, for November 28, calls attention to the confusion existing concerning the solanaceous alkaloids, and states that alarmed by the statement that the hyoscin of commerce is really scopolamin, many physicians have ceased to use the drug. This neglect of the remedy means the loss of a valuable addition to our agents for the relief of suffering. Whether we adopt the German view and consider hyoscin and scopolamin as identical, or insist upon their separate identities, the fact remains that hyoscin is a useful therapeutic agent. Kochman points out that although in cases of idiosyncrasies, hyoscin may cause alarming symptoms, not a single fatal result undoubtedly due to its use has ever been reported. In its physiologic action this alkaloid resembles atropin, but differs in not having any effect on the circulation, and in its peculiar sedative effect on the higher nerve centers. In various forms of insanity, especially of a maniacal type, it is perhaps the most valuable somnifacient we possess, not only on account of its power to allay the excitement, but also because it can be administered hypodermically. Its repeated use however frequently causes loss of appetite, attributable to difficulty in swallowing. It is also an extremely important remedy in paralysis agitans. In other nervous affections, save for its hypnotic power, Kochman does not believe it of much value. It has, however, been found useful in various forms of sexual excitement.

Thiosinamin: In the *American Therapist*, for November, J. W. Wainwright believes the following conclusions justified as to the action of thiosinamin: (1) The beneficial effects of thiosinamin in cicatrices, keloid, chronic granular enlargements and lupus are undoubted. (2) The drug seems to possess a beneficial influence in corneal opacities, ectropion, and in deafness due to sclerosis and adhesions. (3) The drug is claimed to have given good results in urethral structures, and in gynecologic affections, but the number of reports is small, and further evidence is necessary. (4) Taking into consideration the softening and resorbent effects of the drug, it seems rational to believe that it would produce good effects in such conditions as hypertrophied tonsils, hypertrophied turbinates, and in various hypertrophies of the skin. A cautious trial of the drug in the above conditions seems highly desirable. (5) From the latest reports it appears that when used locally, applied or injected into the lesion, thiosinamin produces a stronger and more prompt impression than when administered internally.

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EDITORIAL

Trypanosomiasis

The rôle of animal parasites in the causation of disease appears to be of constantly increasing importance. In addition to the simple ameboid forms seen in malaria, and more recently described in the so-called "mountain fever," another variety of protozoan is brought forward as the etiologic factor in certain diseases, most of them affecting animals, but some also attacking man. These diseases are chiefly tropical, but already sporadic cases of tropical parasites have been reported in our soldiers returning from the Philippines.

These recent acquisitions to our list of protozoan parasites belong to the subdivision flagellates, on account of the possession of a long flagellum, by means of which they progress with great rapidity. The special name given to the genus is "trypanosome," and the diseases in general are known by the name of "trypanosomiasis." The organism is about three times as long as a red blood-corpuscle, is wide and flat, with two angles, one end being blunt, the other thin and tapering. The flagellum starts from near the blunt tip, and passes along the organism at the border of an

undulating membrane attached to one of the angles, and ends free in a filament almost as long as the body. The organism is unicellular and has a definite nucleus. The mode of reproduction is by conjugation, after which the organisms fuse, and later break up into several forms, often in the rosette arrangement with which we are familiar in malaria. Unlike the malarial parasite, trypanosomes are extracellular, and do not invade the red blood-corpuscles. Like the other protozoan parasites, they are carried from one person to another by means of intermediary hosts.

Organisms of this type have been known as parasitic for animals for many years, the first classification being in 1843, but it is only in the last two years that they have been recognized as of importance in human pathology. Severe epidemics among the draught animals in the Philippines led to an emergency report by the Department of Agriculture in 1902, in which the various animal diseases due to such organisms were carefully considered. The best known of these are "surra," a disease of draught animals in India, caused by *trypanosoma evansi*; "nagana," better known as "tsetse fly disease," affecting similar animals in Africa, and caused by *trypanosoma brucei*; "dourine, or maladie du coit," affecting horses and asses in Algeria, Southern France and Spain, caused by *trypanosoma equiperdum*; "mal de caderas," affecting draught animals and hogs in South America, caused by *trypanosoma equinum*, and a nonfatal disease of rats due to *trypanosoma lewisi*. Present knowledge of these organisms indicates that, though closely allied, they are distinct species.

The first definite finding of parasites of this group in the blood of man in connection with disease was in 1902, when Dutton, Forde and Everett, working on the western coast of Africa, found trypanosomes in the circulating blood of a patient suffering from "gambia fever," which is of a remittent type, and characterized by marked anemia and weakness. The organisms were found both in the fresh and the stained specimens, but only in the fever stage and never in very large numbers. The parasite resembled that of nagana, but reproduction forms were not observed, and animal inoculations were unsuccessful. The patient went to Liverpool, and the case stimulated the School of Tropical Medicine to send an expedition to Senegambia to investigate the disease. Five more cases were found, four among the natives and one among the whites, the blood showing apparently the same parasites. Animal inoculations were not satisfactory, but later in the year several cases were reported from the Congo region, and from these

animals were easily inoculated. Reproduction forms were seen in the blood from these cases, and the trypanosomes are fairly well established as the causative agent in the disease.

For a long time physicians have recognized as a definite clinical entity the so-called "sleeping sickness," known throughout Africa, and affecting only negroes. The chief symptom is an overpowering sleepiness, deepening into coma, and usually ending in death, after three to twelve months. Nothing is found at autopsy except congestion of the brain. No bacterial parasite had been found and Manson's theory that the "filaria perstans," a worm allied to the filaria in elephantiasis, and which was found in the majority of cases, was the offender, is weakened by the fact that the filaria is found in the blood of many who are not suffering from the disease. Other theories which concern the chemistry of the food-supply are also unsubstantiated. In 1903, Castellani and Bruce, working independently, found trypanosomes in the spinal fluid in cases suffering from the disease, and in some of the patients also in the blood. At autopsy, the organisms were found in the lateral ventricles in two cases. The parasites were found in the majority of all cases, and in none of a series of 12 persons suffering from other diseases. The question is not entirely settled, but the weight of evidence is in favor of trypanosomiasis.

These protozoa, as is also true of malaria, mountain fever and yellow fever, are carried by intermediate hosts, chief among which are a variety of different flies. Best known of these is the tsetse fly, long noted as the agent of destruction of draught animals in South Africa. It is not yet settled whether there is a cycle of development in the intermediate host, but the presence of the organisms free in large numbers in the blood and the known infectivity of the blood, together with the fact that the incubation period is not longer than is needed for sufficient propagation to reach a number adequate for the causation of symptoms, indicate at least the possibility that the transmission may be entirely mechanical. Treatment is as yet unsatisfactory.

Cataphoresis of Uterine Cancer

This method of treatment is advocated by Massey (*Jour. Am. Med. Ass'n*, November 21, 1903) and consists in the destruction and sterilization of the neoplasm by means of a strong electric current. The greater part of the tissue is really baked so that a general anesthetic is necessary. In early cases, however, several treatments with a weaker current may be given without an anes-

thesia. It is well recognized that the dangerous feature of this disease is its extension through the lymphatics into the broad ligaments and pelvic and other lymph glands. Even in early cases the parametrium may be invaded outside the ureters, and since the principal virtue of this treatment is the actual destruction of the tissues, it is hard to imagine how, in such cases, the cancerous extension could be dealt with without simultaneous injury to the ureter; in the same way the bladder or rectum would be very liable to accident. The author claims that outside the area of destruction there is a peripheral ring of sterilization in which the protoplasm of the neighboring cells is devitalized, especially that of the lowly organized malignant cells. This susceptibility of the cancer cells cannot be considered definitely proved, and, even so, it would be very difficult to estimate the current and exposure necessary to destroy the malignant process without injuring important adjacent structures such as the ureter. As a palliative measure the plan may be most satisfactory, or, as a preliminary to hysterectomy, it would be valuable in lessening the danger of wound inoculation with the cancer cells. Except in the very early cases, in which hysterectomy offers its best results, the chances of a radical cure do not seem very bright.

Additional State Medical Institutions

With the convention of the seventy-sixth General Assembly of Ohio close at hand the desultory talk about additional state medical institutions is crystallizing, and it now becomes possible to discuss more definitely the various proposals that are agitated and that will engage the attention of the legislature. Among the institutions of a medical nature at least six new ones are mentioned as follows: There is the state sanatorium for tuberculosis demanded by enlightened public opinion and heartily endorsed by our profession. There is the state pathologic institute demanded by the organized regular medical profession of the state through the Ohio State Medical Association and endorsed by the progressive heads of the already-established state institutions. A hospital for crippled and deformed children has claimed the attention of some members of our profession and may receive the endorsement of the Chief Executive. A separate institution for the criminal insane and for insane criminals, and another colony for epileptics, both favored by certain hospital superintendents and by certain members of the Ohio Board of State Charities, complete the list. Occasional murmurs have also been heard relative to a separate institution for inebriates.

As to at least two of the proposed institutions there is no question about the attitude of the medical profession of Ohio. No physician abreast of the demands of preventive medicine and with the public welfare at heart will question the wisdom of the state's setting apart the victims of tuberculosis, and affording them sanatorium treatment. Should it be possible for the state to establish but one new institution we believe the unanimous voice of our profession would single out the sanatorium for tuberculosis. The second choice, as shown by the positive declarations of the State Medical Association and by the enthusiastic expressions concerning the movement whenever and wherever it is brought before our profession, is the central laboratory for the existing state institutions, the institute for research in pathology and allied branches, in other words, the state pathologic institute. One especially meritorious feature in connection with this institute is that it will not be independent of the state institutions already in existence; since it is proposed to make it a part of the state hospitals already established, and to locate it on the grounds and under the shelter of the State University. Except for its independent building, equipment, and directors, it will be a part of the rapidly growing State University and an adjunct to all the existing state hospitals.

Some division of professional opinion exists in connection with the hospital for crippled and deformed children, principally in relation to the definition of the precise function of this contemplated institution, and also as regards the method of selecting its material. Without very careful restrictions it is evident to physicians that a state institution of this character might readily become a menace to the profession itself.

A HOSPITAL FOR THE CRIMINAL INSANE AND INSANE CRIMINALS

The State Board of Charities, especially by the utterances of one of its senior members, has interested itself in the project of a separate state hospital for the criminal insane and insane criminals. Very little public enthusiasm has been accorded this movement and the medical profession has maintained a negative attitude. We believe this public and professional apathy adequately represents the relative unimportance of the proposal, and many of the arguments advanced by the few who favor the institution seem to us fallacious. Of these arguments the one least objectionable is that some other states have segregated their criminal insane, and some have established new and independent institutions for this purpose.

It is urged that the criminal insane are most dangerous and inimical to other insane patients, and the promoters of the movement wish to take the 400 individuals alleged to be criminally insane, out of the separate state hospitals and place them in a new institution. Some thrilling accounts of the disturbing influence of the criminal insane upon the other inmates of a hospital are recorded. Our observations lead us to belittle this averred pernicious influence, and we believe the insane with criminal impulses can be properly cared for in our existing hospitals without danger to the remaining population. We even seriously question the advisability of permanently isolating the criminal insane, for the reason that criminal tendencies of one kind or another are so common as incidents in the course of all classes of insanity that it would render very difficult the proper classification of those alleged to be criminally insane. But granting the wisdom of isolation, what reasonable objection can be found to assembling the relatively few criminal insane in each of the existing hospitals in a separate and detached building located on the grounds of these hospitals and under the administration of those already conducting the institution? Why not turn to advantage the already existing equipment of the larger hospitals and avoid the excessive expense of establishing a new institution?

In the matter of insane criminals, by which those confined in the Ohio Penitentiary are particularly meant, no argument against their isolation could be advanced, for surely the burden imposed upon the prisoners confined in the insanitary, tuberculosis-infected penitentiary, which disgraces the State of Ohio, is already heavy enough without compelling their contact with insane criminals. Here again, however, the difficulty could be remedied by establishing first of all a new, modern, and thoroughly sanitary state's prison in a healthful locality, planned on the cottage system, and in which one cottage could be set apart for the insane criminals.

ANOTHER COLONY FOR EPILEPTICS

It required twenty-five years of persistent and patient effort on the part of a group of devoted and enthusiastic men to obtain for Ohio a separate establishment for the epileptic and epileptic insane. With the foundation of this colony at Gallipolis, Ohio achieved the preeminence of having within her borders the first entirely state-endowed institution for epileptics in the world. It became the pioneer in the epileptic colony movement in America. The hospital at Gallipolis, which opens its doors to all classes of epileptics, has already received 2380 patients. At the present

moment it has thirty separate and distinct buildings. Besides the central buildings (administration, congregate dining-rooms, power-station, schools, work-shops) three classes of buildings for patients are provided—an isolated dormitory-plan building for the lower classes of epileptic insane, twelve so-called cottages affording most excellent accommodations for the predominant second and third class epileptics (those from infirmaries, those from the lower walks of life, those moderately advanced in epileptic insanity), and a new group of beautiful and artistic little houses with all facilities for reproducing for the first-class epileptics (those of good social standing, those not insane) the surroundings of a comfortable home. Besides the 250 acres in the original tract, 100 acres of good level farm land have been acquired and turned to productive husbandry. Adjoining this farm is a large expanse of excellent agricultural land which may be procured as the requirements of the growing colony demand. A farm house with comfortable accommodations for a group of working patients already adorns the 100-acre piece last acquired. Both along the beautiful hillsides of the original grounds and upon the farm are suitable sites for small houses, by the addition of which the Ohio institution can take on more and more of the functions of an agricultural community which is the essence of the true colony idea of segregating epileptics, and which can be applied to the care of the first-class and some of the second-class epileptics. By this plan, which is already in operation, the Gallipolis colony can readily accommodate all the epileptics in Ohio needing state aid, and the working inmates can directly contribute to the support of their nonproductive fellow-sufferers.

Still we hear those who argue that another epileptic colony should be established by Ohio which has already invested so much in the far-famed Ohio Hospital for Epileptics. It is asserted that Gallipolis is geographically remote as though this were a serious obstacle, but which very remoteness is welcomed by the authorities of that institution as a great benefit, insomuch as it prevents the objectionable visiting which, in the case of the epileptic accustomed to the hospital regime, is most deleterious in its consequences. Even if the geographic argument were valid it could be met by pointing out the natural advantages of the site with its splendid scenery, its beautiful hills of the noble Ohio, this large expanse of old river-bottom farm lands, all affording a combination impossible in a strictly level farming locality.

Those more enthusiastic than thoughtful advocates of another epileptic colony wish to separate the sane from the insane epilep-

tics, the curable from the incurable, the young from the old, leaving at Gallipolis the demented, nonproductive, helpless and hopeless colonists, and taking the sane inmates, the young folks, and all the workers to the prospective new colony. But those who are familiar with epilepsy in its manifold manifestations will appreciate the absurdity of these proposals. They realize that no border-line between the sane and insane epileptic can be established, that the sane man of today may be the raving epileptic maniac of tomorrow, that the bright youth of the present year is destined, provided he is a victim of idiopathic *grand mal*, in all probability to become the victim of epileptic dementia the year or two following. They are only too painfully aware of the great uncertainties surrounding the treatment of epilepsy in the practical hopelessness of recovery when the disease has become well-established. They are familiar with that strange sympathy which binds victims of epilepsy together, and they assert most positively that no harm whatever results from the segregation of all classes of epileptics in a single community, provided only that suitable facilities in the way of accommodations be obtained.

For these and other reasons that might be adduced, we predict that the General Assembly will not consent to duplicate the splendid start Ohio has made in colonizing its epileptics, but will favor the expansion of the present institution along the lines suggested by those who are most familiar with its needs. And as for the medical profession of our state, we believe that too much pride is felt in the results of the scientific work emanating from the Gallipolis institution to sanction anything that would interfere with the opportunities there presented of studying epilepsy in all of its phases as presented by all classes of epileptics.

A Reminder from the Committee on State Pathologic Institute

It should not be forgotten, now that the legislature is in session, that the principal medical organization of Ohio, the Ohio State Medical Association, has pledged itself to actively aid in a propaganda looking to the establishment of a state pathologic institute. The Committee on State Pathologic Institute appointed by President Chapman and confirmed by the House of Delegates of our State Association has come to the point where the aid of component societies and individual physicians is required. The Committee is sending out letters to the secretaries

of the various local medical societies throughout the state inviting their cooperation which is suggested to take the form of an appeal to the local political representatives who are members-elect of the General Assembly, this appeal to be in the form of resolutions from the society as a whole commending the plan of establishing a state central laboratory as a part of the state hospitals' system and requesting financial support in the way of the desired appropriations. It is also suggested by the Committee that the component societies delegate their influential individual members to bring the project directly to the notice of legislators.

The purposes of the state institute have already been outlined in papers * that have appeared in the JOURNAL.

They are such as to appeal to the sympathy and enlist the aid of every physician who wishes to see our profession advance along the lines of scientific research. With the inception of the present movement in our State Association and with the plan of keeping the balance of control in the hands of members of the Association, we feel that the proposed institute is so much a creature of the State Association as to demand the active support of every component society and every individual member. We believe that the appeal of the Committee on State Pathologic Institute will awaken a hearty and fruitful response throughout the medical profession of our state, and that the legislature will be made to feel the strong influence of an organized medical society representing the whole of Ohio. The initiative, so far as component societies are concerned, may well be taken by the Academy of Medicine of Cleveland.

A Gift

It is always a pleasure to be able to record the gift of endowment funds for scientific medical research. In this instance it is a positive delight as a direct result of the donor's large generosity and the specific purpose for which this gift has been designated.

In these days of extensive gifts for general educational endowments, the public mind is all too apt to lose sight of or to become callous of the real significance of a gift which goes to establish a department of medical investigation quite unknown and wholly unappreciated by the average layman.

The public at large knows something of pathology, of bac-

*Ohlmacher. The Laboratory Movement in Ohio's State Hospitals. *Cleveland Medical Journal*, July, 1903. *Ibid.* The Objects to be Attained by an Organization of Assistant Physicians. *Cleveland Medical Journal*, September, 1903.

teriology perhaps even more, but of anatomy not one individual in a hundred, we venture to assert, has the slightest conception of the tremendously broad and fundamental field of scientific medicine included under that old and familiar title. It might be difficult, if not impossible, to persuade the average layman that there could be any great sphere for the advancement of scientific medicine in the domain of anatomic research, a fact which only emphasizes the immense possibilities accruing from such a department so liberally established.

As the recipient of this generous endowment fund of \$100,000 the Western Reserve University is to be congratulated, while to Mr H. M. Hanna, the donor, are due the appreciative thanks, not only of the University and of the profession of Cleveland, but of the city at large, and of everyone interested in the advancement of scientific medicine.

Book Reviews

The Surgical Diseases of the Genito-Urinary Organs. By E. L. Keyes, A. M., M. D., LL. D., Consulting Surgeon to the Bellevue, and the Skin and Cancer Hospitals; Surgeon to St. Elizabeth Hospital; formerly Professor of Genito-Urinary Surgery, Syphilology, and Dermatology at the Bellevue Hospital Medical College, etc., and E. L. Keyes, Jr., A. B., M. D., Ph. D., Lecturer on Genito-Urinary Surgery, New York Polyclinic Medical School and Hospital; Surgeon to the Out-Patient Department, St. Vincent's Hospital; Physician to the Venereal Clinic, Out-Patient Department of the House of Relief of the New York Hospital, etc. A revision of Van Buren and Keyes' Text-Book, with one hundred and seventy-four illustrations in the text and ten plates, eight of which are colored. New York and London. D. Appleton and Company. 1903.

This book is a thorough and sensible treatise of the subjects on the title page. The consideration of gonorrhea, and all the inflammatory diseases of the genitourinary tract, and their numerous and wide-reaching sequels has been greatly amplified and given with sufficient detail to be of great service to the general practitioner. On some important subjects of surgical treatment, such, for instance, as ureteral catheterization, the authors have shown a conservative attitude that is wise. The chapters on prostatic hypertrophy and its treatment are excellent, all the recognized methods of relief being carefully considered, including the Bottini operation and its various modifications. The surgical diseases of the bladder, ureter and kidney receive their fair share of attention and are well handled. The text is enriched with numerous illustrations, which are of excellent character, and aid greatly to a quick grasp of the subject matter. Altogether this book is one of the best treatises on genitourinary surgery that we have seen.

The Principles and Practice of Hydrotherapy. A Guide to the Application of Water in Disease. For the Student and Practitioners of Medicine. By Simon Baruch, M. D., Professor of Hydrotherapeutics in the New York Post-Graduate Medical School and Hospital; Visiting Physician to the J. Hood Wright Memorial (formerly Manhattan General) Hospital; Consulting Physician to the Montefiore Home for Chronic Invalids; Member of the New York Academy of Medicine; Formerly Gynecologist to the North-eastern Dispensary; Physician for Eye, Ear, and Throat to the Northwestern Dispensary of New York City; Physician and Surgeon to the New York Juvenile Asylum, and Chief of the Medical Staff of the Montefiore Home for Chronic Invalids. Second Edition. Revised and Enlarged. With Numerous Illustrations. Pp. 490. 8 volumes. **New York.** William Wood and Company. 1903.

The author is one of the most competent men to present this subject, and the fact that the first edition of this work has been rapidly exhausted has led to an enlarged and revised edition. The subject is taken up in an exhaustive and systematic manner. The physiologic effects of water, and anatomy, physiology and functions of the skin are considered. The various methods of hydrotherapy and the different diseases in which they are indicated are fully described. An earnest effort has been made to put the whole subject upon a scientific basis and to arouse greater interest in this invaluable therapeutic measure. Hydrotherapy, except in typhoid fever, is but little employed in America. Baruch hopes to see its use increase among medical men instead of being left in the hands of laymen. A number of illustrations are inserted and numerous references to the literature are given. The book should prove of value to the general practitioner as well as to those specially interested in this subject.

Atlas of the External Diseases of the Eye. By Prof. Dr. O. Haab, of Zurich. Second Edition, Thoroughly Revised. Edited with additions, by G. E. DeSchweinitz, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania. With 98 colored lithographic illustrations on 48 plates, and 232 pages of text. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Price, \$3.00 net.

It was the reviewer's pleasure to speak very favorably of this little Atlas when it first appeared about four years ago. In this edition eight new chromolithographic plates have been added together with the text describing them, and the work has been revised with the addition of some new material. Numerous comments by the American editor are found throughout the book and add to its value. The volume can be heartily commended and will be found especially useful to students and to physicians in general practice with a limited opportunity of seeing the various external diseases of the eye.

A Laboratory Guide in Urinalysis and Toxicology. By R. A. Witt-
haus, A. M., M. D., Professor of Chemistry, Physics and Toxicol-
ogy in the Medical Department, Cornell University; Member of
the American Chemical Society, and of the Chemical Societies of
Paris and Berlin, etc. Fifth Edition, 112 pages. William Wood
and Company, New York. 1903.

This is a very convenient little book for the student doing lab-
oratory work. The first part deals with the reactions and methods
of determination of the different acids and bases; urinalysis, both
qualitative and quantitative, is then discussed, and finally the
methods for the detection of poisons are considered. One side of
each leaf is left blank for the addition of notes or other data. The
book is concise and useful for reference.

Proceedings of the Second Meeting of the Association of Assistant Physicians of the Ohio State Hospitals

The second meeting of the Association of Assistant Physicians
of the Ohio State Hospitals was held at the Toledo State Hospital
October 7 and 8, 1903. The following members were present:
Drs Jas. F. Kelly, Katharine R. Moses, Cleveland; Drs William
H. Pritchard, Ralph W. Holmes, Walter H. Buhlig, Gallipolis;
Drs George T. Harding, Jr., Isabel A. Bradley, Columbus; Drs
George R. Love, Nelson H. Young, Jeremiah H. Metzger, Mary
Ketring, Frank J. Latshaw, F. D. Ferneau, Toledo.

The first session was held October 7, 1903. The meeting was
opened with Dr G. T. Harding, Jr., in the chair.

Dr Henry Tobey, superintendent of the Toledo State Hos-
pital, extended a most hearty welcome to the Association and then
proceeded to give an address on the "Relation of the Assistant
Physicians to the Hospital Management."

Ex-Governor Charles Foster, President of the board of the
Toledo State Hospital, then addressed the meeting, giving a brief
account of the progress made in the treatment of the insane in
Ohio during the past fifteen years.

The minutes of the first meeting of the Association, which
was held at Columbus, Ohio, July 16, 1903, were read and
adopted.

Dr F. D. Ferneau presented to the society a very interesting
case of the gasoline habit in a boy eight years old who was a
patient in the Toledo State Hospital. Drs Love, Tobey and
Holmes discussed the case.

Dr James Kelly, Cleveland, read a paper entitled "Sugges-
tions on the Nature and Treatment of Delirium Tremens." It
was discussed by Drs Latshaw, Pritchard, Love and Young.

Dr Wm. Pritchard, Gallipolis, read a paper entitled "*Dementia Præcox*." It was discussed by Drs Holmes, Bradley, Tobey, Young and Kelly.

A telegram from Dr Irwin H. Neff, of Pontiac, Michigan, Secretary and Treasurer of The National Association of Assistant Physicians, extending congratulations to the members of this Association, was read.

Adjournment at 5:20 p. m.

The second session was held October 8, 1903. The meeting opened at 9:00 a. m., with President Harding in the chair.

Dr Isabel A. Bradley, Columbus, read a paper on "A Case of Chorea Insaniens with Report of Autopsy." It was discussed by Drs Love, Buhlig and Pritchard.

Dr Nelson H. Young, Toledo, read a paper on "The Use of Thyroid Extract in the Treatment of Insanity with Report of a Case." Drs Kelly, Metzger, Love, Buhlig, Young and Tobey took part in the discussion.

Dr Walter Buhlig, Gallipolis, read a paper on "General and Special Methods in the Postmortem Examination of the Brain and Spinal Cord (with practical demonstrations)." Drs Metzger, Young and Bradley discussed the paper.

A communication from the American Congress on Tuberculosis was read requesting the Association to appoint a commission to represent the Society in Washington, April, 1905. Drs Pritchard and Ferneau were placed on this commission.

Dr Ralph Holmes called the attention of the Association to the movement in the state towards the organization of a Central Pathological Institute.

Dr George Love presented the following resolutions:

We, the Association of Assistant Physicians of the Ohio State Hospitals, believing that a well-directed central laboratory for teaching and research in connection with the State Hospitals would be a most efficient means of advancing the medical work in these hospitals, and of fostering a scientific spirit among the physicians connected with the various State Hospitals; and, believing that such an institution would materially enlarge our knowledge of the nature, cause, treatment and prevention of the diseases for the care of which these hospitals are established, thus enabling us to prosecute our work with more satisfaction and success; and, believing that the scientific contributions from it would bring credit and renown to the State of Ohio; therefore, be it

Resolved, That the Association of Assistant Physicians of the Ohio State Hospitals desires to cooperate with the Committee

on State Pathological Institute of the Ohio State Medical Association; and be it

Resolved, That the Association of Assistant Physicians of the Ohio State Hospitals as an organization and individually pledges itself to support in any way the promotion of the plans having for their object the establishment of a State Pathological Institute of Ohio; and be it further

Resolved, That the Legislative Committee of the Association of Assistant Physicians of the Ohio State Hospitals be instructed to use its best endeavors to aid the movement for a State Pathological Institute whenever and wherever opportunity arises.

The resolutions were adopted by the unanimous vote of the society. Dr Pritchard moved that a vote of thanks be extended to Dr Tobey and his staff for the courtesies and kind hospitality which we had received. Carried.

Adjournment at 12:20 p. m.

ISABEL A. BRADLEY, Secretary.

The Cleveland Medical Library

The annual meeting of the Cleveland Medical Library Association was held on Monday evening, December 14, 1903. Very satisfactory reports were submitted by the officers. The gain in the number of books was equal to that of former years, although no large individual gifts had been made. This increase is regarded therefore as most encouraging. The indebtedness has been reduced during the year by nearly three-quarters, and at the meeting a large sum (\$235) was subscribed by the members for the book fund. The increase in membership during the year has been above the average. The officers for the coming year were elected as follows: President, Dr D. P. Allen; Vicepresident, Dr D. H. Beckwith; Secretary, Dr G. W. Moorehouse; Treasurer, Dr H. G. Sherman, Librarian, Dr C. A. Hamann. Fifteen trustees were also elected for a period of three years.

The address of the evening was entitled "The Irrepressible Savage," and was delivered by Dr Dan Millikin, of Hamilton, Ohio, in his usual happy style. The evening was concluded with a smoker and refreshments.

The growth of the Medical Library has been steady and satisfactory, but there are still a great many physicians of Cleveland and the vicinity who do not avail themselves of the opportunities offered by this excellent institution. The majority of the new works on medical subjects are procured and the current

numbers of all the important journals, both American and foreign, are on file. The privileges of the Library of the Surgeon General at Washington, D. C., are extended to members of this Association, and books may be obtained free of cost except for the payment of the express charges.

It is certainly the duty of every physician to support this institution, not only for his personal advantage, but because a larger membership means increased facilities and a larger number of book and periodicals. It is hoped that the ensuing year will be one of even greater success than the past.

Medical News

D. M. Caldwell, of Fairport, will remove to Toledo on January 1.

Dr Allen was elected Secretary of the Board of Health of Cambridge.

A. M. Crane, of Marion, and Miss Susie B. Johnston were married on December 23.

C. L. Bodifield, of Cincinnati, and Miss Grace Finney were married on December 23.

W. E. Atwell, of Zanesville, has been elected surgeon for the National Association of Naval Veterans.

Harry Cosler, of North Hampton, and Miss Emma Myers, of Dalton, were married on December 29. The Doctor will locate in North Hampton.

H. B. Gibbon, of Tiffin, was elected President of the Northwestern Ohio Medical Association. The next annual meeting of this Association will be held at Tiffin.

W. W. Pennell, of Fredericktown, will suspend practice about the first of February. It is reported that he will take a post-graduate course and thereafter locate in Mt. Vernon.

The Mercer County Medical Society met at Celina on December 11. The election of officers resulted as follows: President, C. F. Bolman, Coldwater; Vicepresident, S. R. Wilson, Celina; Secretary, D. H. Richardson, Celina; Treasurer, W. C. Stubbs, Celina.

A quarterly meeting of the Lakeside Hospital Alumni Association was held at the Hospital on December 16. After the discussion of the business of the evening the proceedings concluded with a smoker and refreshments. The annual meeting and banquet will be held January 20, 1904.

The Champaign County Medical Society held its regular monthly meeting at Urbana on December 12. Officers for the following year were elected as follows: President, E. W. Ludlow; L. M. Norman, of Millerstown, Vicepresident; M. L. Smith, Secretary; Richard Henderson, Treasurer. The Society will arrange to meet once a year with the Clark and Logan County Medical Societies.

The Jefferson County Medical Society held its annual meeting on December 10 at Steubenville. The officers for the ensuing year are as follows: President, E. Pearce; Vicepresident, S. O. Barkhurst; Secretary, J. R. Mosgrove; Treasurer, Joseph Robertson, all of Steubenville.

The Carroll County Medical Society met at Carrollton on December 12. The officers for the ensuing year are as follows: J. R. Williams, President; J. H. Hathaway, Secretary and Treasurer. The next meeting of this Society will be held at Carrollton on January 19, 1904.

The Columbiana County Medical Society met at Lisbon on December 17. Officers for the ensuing year were elected as follows: William Moore, Lisbon, President; J. S. Campbell, Wellsville, Vicepresident; W. E. Morris, Lisbon, Secretary and Treasurer; F. P. Moore, Lisbon, and O. A. Rhodes, Salem, Censors.

The Knox County Medical Society met at Mount Vernon on December 12. C. O. Probst, Secretary of the State Board of Health, read a paper upon "Sanatoria as a Cure for Tuberculosis." J. F. Baldwin, of Columbus, read a paper on "Tuberculosis from a Surgical Standpoint." The following officers were elected: R. W. Colville, President; D. D. Arndt, Vicepresident; H. W. Blair, Secretary, and W. L. Eley, Treasurer.

Deaths

G. H. Fraser, of this city, died December 28.

F. H. Spencer, of Cincinnati, died December 26.

A. H. Brundage, of Xenia, died on December 10.

George A. Hollister, of Norwalk, died December 14.

N. B. Ridgeway, of Galion, died at his home on December 11.

F. A. Kitchen, of Toledo, died at his home on December 20.

A. L. Robinson, of Wellsville, died on December 26, at the home of his sister in New Castle, Pa. The death resulted from injuries sustained in an accident.

The Cleveland Medical Journal

VOL III

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NO 2

Chronic Ulcer of the Stomach and Duodenum, with a few Remarks on Gastric Cancer, from a Surgical Standpoint

BY WILLIAM J. MAYO, A. M., M. D., ROCHESTER, MINNESOTA
Surgeon to St. Mary's Hospital

The stomach is a fuel store-house into which there is rapidly placed at intervals a quantity of material for the slower process of digestion. Its function is to equalize the temperature of the ingesta and by means of a weak solution of hydrochloric acid and pepsin, to macerate and break up the food-masses. The resulting product is slowly delivered into the small intestine, where digestion is completed and assimilation accomplished. With the exception of fluids, little absorption takes place in the stomach. The first portion of the duodenum can be said to be the vestibule of the small intestine and related most closely to the stomach, the common duct properly marking the beginning of the small intestine. Its internal diseases are closely associated with those of the stomach and usually due to the same causes.

Externally this portion of the duodenum is often affected by diseases of the gall-bladder. It acts as a buffer between the secretions of the liver, the pancreas and the stomach and by its situation the upper four inches of the duodenum is the most frequently diseased part of the alimentary tract of the same length.

The stomach functions are thus closely divided into two groups, the mechanical and the chemical, and experience teaches that the mechanics are of far greater importance than the chemics. The stomach does not empty itself by gravity, but by muscular action, and this activity is of a peculiar sort. The fundus slowly contracts, forcing the contents, as a whole, toward the pyloric

end. The pyloric portion, that is, that part of the stomach lying to the right of the esophagus and having the lesser curvature as its superior wall, is the mill, like the gizzard of a fowl, grinding and pulverizing the food, while from the right side the pylorus is turning the product into the duodenum, as demonstrated by Cannon in his bismuth and X-ray experiments. We have seen this pyloric contraction take place many times, at the operating-tables, ring-like constrictions appear and disappear and, again, limited contractions of the gastric wall are to be seen, which quickly subside. Sometimes a vermicular action of this entire end of the stomach is apparent. The pylorus itself is but a small increase of the circular fibers, about one-half the size and power of the external sphincter ani. I am satisfied that the so-called pyloric spasm does not refer to the pylorus alone, but that the contracture may involve any part or all of the pyloric end of the stomach.

It would be outside the limits of this paper to go into the etiology of gastric ulcer, but two facts are preeminent: first, that 75% of gastric ulcers lie in the grinding apparatus of the pyloric end, that is, in the area exposed to mechanical injury, and second, that at some time in the history of gastric ulcer, and in the majority of cases at all times, there is a relative increase in the secretion of hydrochloric acid, and whether cause or effect, the excess is a most important etiologic factor. This is shown by the frequency of typical peptic ulcer in the first portion of the duodenum above the common duct with its alkaline fluids, and by the occasional appearance of secondary ulcer in the jejunum, which has resulted in a few cases after the performance of gastroenterostomy to divert the food-current from the ulcerated area.

There is hardly a question connected with ulcer of the stomach which is not in dispute. The many theories prove the paucity of facts. Of statistics there are more than enough, but their divergence renders them confusing. In some countries ulcer is said to be very frequent, as in certain parts of Germany, given as high as 10%; but whether based on the notoriously defective clinical data or upon postmortem evidence is not developed: Stark in Copenhagen found 13% in the autopsy findings, Greiss in Kiel 8.3%, Brinton of Philadelphia 5%, Berthold at the Berlin Charite 2.7%. The relative frequency in the sexes ranges from the statistics of Fiedler who in 2,200 autopsies found 20% of the female bodies with evidence of recent or old ulcer and only 1.5% of the male bodies. Welch in 793 ulcers, detected post-mortem, found 60% in women and 40% in men. Berthold in 262

cases found 134 in women and 128 in men. At the operating-table we found 59% in women and 41% in men. The large irregular ulcer in our experience is more common in adult males, and this has been the general observation. In 100 cases of chronic ulcer tabulated by Taylor, 72 were in males and 28 in females. On the contrary, the small ulcer has been more common in the female. The increased percentage in women is due to the fact that acute forms of round ulcer are most frequent in young females of the chlorotic type. In a considerable proportion of cases, about 20%, more than one ulcer is present, a frequent combination being one on the anterior and one opposite on the posterior wall, or one or more ulcers on the stomach and one of the duodenum.

Brinton in 463 cases discovered postmortem 57 with 2 ulcers, 16 cases with 3 or 4, 2 cases with 5, and 4 cases with more than 5. Osler reports one case with 35 ulcers. At least 75% of all cases of gastric ulcer are to be found in the pyloric portion of the stomach, and in an increasing ratio toward the pylorus and lesser curvature. Welch in 793 cases found 235 in the posterior, 288 in the lesser curvature, 96 in the anterior wall, 95 in the pyloric ring, 29 in the fundus and 27 along the greater curvature.

In our series of gastric and duodenal ulcers 11% were located in the first portion of the duodenum. Adult males are most frequently the subject of chronic ulcer of the duodenum. In 24 cases which came to operation, in our experience, 20 were males.

Gastric and duodenal ulcers can be divided into four groups: First, mucous erosions involving the superficial epithelial portion of the mucous membrane only; second, round and fissure ulcers which penetrate through to the submucous coat, but do not involve the muscular and peritoneal coverings excepting in perforative cases; third, chronic irregular ulcer which involves all the coats and usually shows evidence of cicatrization in some part of its extent; fourth, benign obstructions of inflammatory origin. This last group is based upon a complication, but cannot always be clearly traced to the known varieties of ulcer already classified.

Deaths from perforation and hemorrhage have permitted of exhaustive examination as to the nature and character of acute ulcer and the result is that we have fairly accurate methods of diagnosis. The vomiting, hemorrhage, local tenderness, pain and hyperchlorhydria form a classic group of symptoms. Chronic ulcer, unfortunately, cannot be clearly predicted upon these symptoms, and this is perhaps the most unfortunate feature of the subject. Acute perforation and fatal hemorrhage are not com-

mon in chronic ulcer, and vomiting is by no means of frequent occurrence unless obstruction supervenes. The chronic ulcer must not therefore be confused with the acute form, although during an exacerbation there may be some of the symptoms of acute ulcer. The clinical picture presented by chronic ulcer varies widely. The most prominent symptom is pain—painful digestion. Sometimes the pain is of a burning character, in other cases it is described as a boring pain. There is more or less tenderness at the epigastrium, but not often the typical pain pressure points front and back, which are so often found in acute ulcer. Usually the pain is worse after eating, but taking food sometimes relieves the distress for a time, probably by diluting the irritating gastric secretions. The painful “spells” last intermittently for some days or weeks to be followed by an interval of comparative health, lasting some weeks or months. These health periods are very confusing and often lead to erroneous belief as to cure. The pain is not constant and does not attend each meal. One time great pain will follow a light meal, and again, a hearty meal will bring no complaint. Unless there is obstruction, vomiting is rare, the pain causing the victim to reduce his diet, often to semistarvation, having learned that this will most quickly relieve the distress. Gerhardt says that “the ulcer patient has appetite but is afraid to eat, while the victim of cancer has but little desire for food.” Hemorrhage in appreciable quantities is rare. In the anemic forms there is probably a pretty continuous loss of blood, but not often vomited or detected in the stools. Constipation is the rule, but in some cases the opposite is true, for it must be borne in mind that digestion or at least gastric motility is increased in many cases of irritable ulcer, and the food is hurried into the duodenum even more rapidly than normal. At the height of an attack of pain it is seldom that food can be withdrawn from the stomach by the tube. The stomach is not sensitive to touch as shown during operation with local anesthesia, but gas distention causes great distress and this gaseous pressure, after taking food, is in itself a valuable diagnostic sign, and is rarely absent during the height of the pain. The symptoms of duodenal ulcer are much the same as ulcer of the stomach. The attacks of pain are even more severe and may resemble gall-stone colic, the pain and tenderness being in the region of the gall-bladder. In three of our cases the operation was performed with the expectation of finding biliary calculi. A great deal has been written about the possibility of locating the situation of the ulcer by the length of time after taking food before the pain appears.

In a general way it is true that the ulcer in the vicinity of the pylorus, and especially in the duodenum, does not develop pain as quickly after eating as in the body of the stomach; but not much reliance can be placed upon this sign, first, because of the great frequency of symptom producing ulcers near the pylorus, while ulcers at the fundus are more often latent, and second, because of the fact that in a considerable percentage of the cases the lesions are multiple. There is a general tendency to believe that all palpable tumors of the stomach are malignant, and this has often led to death from starvation, a benign tumor with a fatal stenosis being supposed to be malignant and necessarily hopeless. We have seen six well-defined tumefactions due to the thickening about a chronic ulcer. Reinhardt found 16 cases of simple ulcer giving rise to a tumor. Gastric tetany is a somewhat rare condition which, however, exists in a larger proportion of cases than has been thought. Heretofore, only the more severe grades have been diagnosed and the larger percentage of these cases have died. Frankl Hohnard found 10 deaths out of 11 cases, Albu 31 out of 40. There are very many mild cases in connection with the more severe grades of gastric dilatation shown by muscular cramps, prickling in the extremities but without typical contractions, and these symptoms should call attention to the necessity of immediate operation for drainage purposes. Of all laboratory methods of diagnosis, excess of hydrochloric acid is the only one which has proved to be of value, and this only as corroboratory evidence.

So much for chronic ulcer without complications. The large majority of cases develop changes in the size or position of the stomach as the result of complicating cicatrices, adhesions or obstructions. In fact, many cases do not have symptoms upon which a diagnosis can be based before the development of these changes. Of all these conditions narrowing or fixation of the pylorus is the most important. An ulcer in the vicinity of the pylorus by contraction or spasm may obstruct mechanically the progress of the food with resulting dilatation of the stomach. This produces the so-called pyloric syndrome of Hartmann, pain, indigestion, gas, and hypersecretion, and, in many cases, peristaltic waves can be seen passing from left to right over the gastric area. With a stomach-tube and an ordinary Davidson syringe the stomach can be dilated. The air may be pumped in and allowed to escape again and again, until the outlines can be determined. The tartaric acid and bicarbonate of soda test is dangerous and too sudden to permit of accurate work. Deaths from the sudden

distension have been reported by Stockman and others. If the lesser curvature is in its proper position and the great curvature lies below the umbilicus, some degree of dilatation is present. If the entire stomach is prolapsed the question of dilatation is easily ascertained by noting the relative position of the curvatures on air distention. Pyloric obstruction gives unmistakable evidence of its presence, dilatation, stagnation and retention of food causing fermentation, late vomiting and emaciation. These cases are seen in all stages from the slight temporary interference with digestion to the most marked degree of disability. The condition can be aptly compared to a valvular heart lesion. Spells of dilatation alternating with compensation through hypertrophy give periods of comparative health after a more or less prolonged term of gastric insufficiency.

The best practical test as to the loss of motility is the finding of remnants of food in the stomach upon using the tube before breakfast. The various test-meals have some corroboratory value. Of over 1,200 cases in which careful examination of the stomach contents including test-breakfast and so forth, was made, nearly 400 came to operation. The clinical diagnosis based on the history, physical examination of the stomach with the use of the stomach-tube to develop the outlines and remove retention products, gave a correct diagnosis in the large majority of cases. The chemical and microscopic examination of the gastric contents proved of little value. The only one upon which any reliance is to be placed is that high values for hydrochloric acid argue for ulcer and low values for cancer; but only as corroboratory evidence, as the exact opposite may be true. I have no desire to go into the question of differential diagnosis, but I do wish to call the attention of the general practitioner to the fact that refinements of technical diagnosis are often useless and occasionally harmful in causing delay, and that the sensible practitioner with the few simple means at his command is perfectly capable of arriving at a reasonable diagnosis, and will at least be able to direct the majority of his patients needing surgical treatment to the surgeon in time to be of benefit.

The prognosis of ulcer of the stomach has given rise to much discussion. Tricomi believes that 20 to 25% will die under medical treatment. Brinton estimates that about 50% are cured by medical means. Debove and Remond state that 25% die directly from the lesion itself (perforation and hemorrhage), and 25% additional from different complications, such as pulmonary tuberculosis due to the chronic anemia. Luebe, who has given gastric

ulcer careful study, says that 25% die from the direct effect of the lesion and that cases curable medically should be cured in four to five weeks' time. A recent study of 500 cases treated at the London Hospital between 1897 and 1902 is most interesting; 211 had had attacks previously, that is, were known to have had ulcer with intervals of apparent cure, 18% died and 42% were not cured at the time of discharge. A total of 60% died or were not cured, and of the 40% supposed to have been cured, who can tell the future course of these patients? It is the old story of appendicitis and gall-stone disease over again, each attack a medical cure. Eliminate chronic gastric ulcer and the cases of chronic dyspepsia, gastralgia and cardialgia not due to gall-stones or the appendix, will be reduced to small proportions. The development of cancer upon chronic ulcer is also a risk, the full significance of which is only of late becoming apparent. Duplant has been largely quoted against the theory of cancer formation after ulcer; but recently, Audisten, going over practically the same material, has shown that pyloric cancer often begins at the margin of an ulcer. Lebert says that 9% only become cancerous; but this refers to those cases which pass directly from the one condition into the other. How about the early ulcers followed in later years by malignant change? Statistics upon this point are not available, but most observers place cancer-grafting upon an ulcer base much higher. My colleague, Dr Graham, in 125 cases, found a good ulcer history preceding cancer in 60% of cases; but in many cases years had elapsed between the ulcer and the cancer. Futterer, from the standpoint of a pathologist, comes out very strongly for the cancer-upon-ulcer theory, and especially as secondary to the so-called fish-hook ulcer. Dunn well says that reasoning from analogy alone, one must conclude that ulcer is a frequent precancerous condition, and he believes that this can be demonstrated from his own experience. We have specimens showing the two conditions existing in the same case. Cases with early history of ulcer and later developing decided gastric symptoms must be looked upon as suspicious of malignant disease.

Before going to the surgical treatment, let me add a few words in regard to some dilatations of the stomach not of organic origin, such as the so-called atonic dilatations often found in neurasthenic individuals and without the pyloric syndrome of Hartmann. In these cases there is no retention, and little stagnation of food. As a rule, these patients are not benefited by operation. This is also true of gastropotosis, which we have found to be present in over half of the cases of movable kidney. Re-

laxed conditions in the neurasthenic state are not often permanently benefited by surgical operation. It is one of the misfortunes of surgical progress that neurasthenic symptoms are too often taken for organic disease. We have but to look back on the discredit thrown upon surgery by the mutilating operation upon the pelvic organs of women to impel us to go slow on the numerous class of neurasthenic stomachs, and before we operate let us be sure the lesion exists elsewhere than in the mind of the patient.

Uncertainty of diagnosis will render the majority of operations primarily an exploration, either as to the actual condition present or as to its extent and surgical indications.

The incision is placed in the median line between the ensiform cartilage and the umbilicus. This enables the movable portion of the stomach to be drawn out of the abdomen. The examination should be thorough, and should include a digital exploration of the fundus and about the cardiac orifice in every case to avoid overlooking high hour-glass contractions. The duodenum should also be inspected and palpated in its upper four inches, and the gall-bladder should also be examined, as complicating stones are not infrequent. If one ulcer is found, search should be instituted for others. Usually even small ulcers can be located by a slight thickening of the gastric wall, perhaps a little place where the mucous coat is glued to the muscular tunic preventing the normal sliding of one upon the other. Ulcers involving the muscular and peritoneal coats are easily recognizable by the milky or opaque appearance of the peritoneum, usually smooth and having the thick, stiff feel of scar tissue, with lessened vascularity, unlike the nodular, bossy feel of gastric cancer. Lund has pointed out that enlarged glands in the omenta may aid localization, and we have found this sign of great value. Strange to say, such lymph nodes are most usually located in the gastrocolic omentum rather than in the lesser omentum, a situation so peculiar to cancer. To locate ulcers on the posterior wall it may be necessary to open the lesser cavity of the peritoneum sufficiently to introduce a finger for exploration. This can be done either through the lesser or the gastrocolic omentum.

Exploration of the gastric cavity can be best accomplished by a longitudinal incision into the stomach half way between the curvatures, through this opening a short wide speculum can be introduced and, with a finger behind, the greater part of the mucous membrane can be gone over. Small ulcers may be difficult to locate and in many cases prolonged search for an ulcer,

the medical diagnosis of which is established beyond question, is inadvisable. On one occasion a thorough exploration did not reveal an ulcer which had bled repeatedly for weeks, and it was only by accident that sponging the mucous surface started up the hemorrhage from a little fissure previously undetected.

The indications for the surgical treatment of gastric ulcer are of a two-fold nature, first the question of the ulcer itself, and second, the relief of the complicating dilatation, distortion, adhesion, and so forth, and the keynote is drainage, for it is largely a question of mechanics. In some cases the ulceration has already terminated, and the question to be solved is purely mechanical. Gastroenterostomy is the operation of the widest range of application, but excision of the ulcer, pylorectomy and pyloroplasty have each a limited field of usefulness; while in hour-glass contractions, gastrogastrostomy combined with gastroenterostomy is necessary to establish a cure.

It would seem that excision of the ulcer would be the indicated procedure; but there are some disadvantages. In the first place, in a considerable percentage of cases, there is more than one ulcer present, and one or more may be undetected or exist in an inaccessible situation. Again, the tendency to ulceration still exists and new ulcers may manifest themselves later. There is also the liability of future contraction, the bands having their origin at the site of a former ulcer. It is probable that the radical procedure of Rodman will be indicated in an increasing number of cases. He advises complete excision of the ulcer-bearing area, that is, the muscular pyloric region, to be followed by independent gastrojejunostomy. This would meet all of the indications and also prevent a possible malignant degeneration of the ulcer base.

Pyloroplasty has a small field of usefulness in narrow strictures of the pylorus, provided the ulcer has healed. The objections to it are that there is great liability to fixation of the pylorus after operation upon it, and also a considerable tendency to recontraction. It is a very safe operation as we had no deaths in 19 cases, but we had to reoperate upon six cases.

The gastroduodenostomy of Finney is a far better operation. It gives a very large opening, and as the enlargement is downward in the line of gravity drainage, the results are much better than in the unmodified pyloroplasty. We have made this operation 34 times with but one death, and our results have been most excellent. In open ulcer it is probable that the operation will often fail to cure, as obstruction has no part in its causation as is shown by the existence of ulcers in the duodenum beyond the pylorus. It

can be readily seen, therefore, that no matter how large the opening is made, the food and irritating gastric secretions must pass over the ulcer area to reach the intestine. The conditions calling for the Finney operation are late cicatricial stenosis and contractures.

All in all, gastrojejunostomy is the operation of choice. It drains the stomach rapidly from its lowest point and from the cardiac side to the left of the ulcer-bearing pyloric region. It has some drawbacks. If the pylorus is not permanently obstructed the anastomotic opening may contract. This can be obviated by excising the pyloric ring or running a silver wire purse-string suture about the duodenum immediately below the pylorus, and thus producing the favorable condition of permanent obstruction. If the latter condition exists, there is little danger of recontraction.

Anterior gastroenterostomy is liable to secondary peptic ulcer of the jejunum from the irritating gastric secretions. The posterior operation, while not free from this disaster, is much less liable to it. In 15 cases which Mikulicz found recorded, all were after anterior operation. All of the secondary ulcers were found either on the intestinal side of the anastomosis or immediately below the opening. Watts found but two out of 13 after the posterior operation. The anterior operation also had a tendency to drag on the attachment and contraction is more frequent than after the posterior operation, especially if the Murphy button be used. The suture methods provide a larger permanent cicatricial area of adhesion which prevents the diverticulum formation at the site of anastomosis in the jejunum so often seen in the former cases.

In our experience the posterior suture gastroenterostomy made at Mikulicz's point of election, that is, within four inches of the origin of the jejunum, is the best method known at this time. We have performed the Mikulicz operation 38 times with two deaths. As to the manner of performing the operation, the Murphy button makes the most perfect opening, but is liable to be retained in the stomach, although this is seldom a cause of serious after-trouble. The suture methods are favorable inasmuch as the opening can be made of large size to guard against contraction. However, there is some tendency to the formation of a diaphragm. To a certain extent this can be avoided by excising the mucous membrane rather freely at the opening as advised by Moynihan. The McGraw ligature is a very safe method, and a fine opening can be secured. There is, however, a considerable amount of scar-tissue formation about the ring, and there is occasionally a bridge of mucous adhesion across the opening. In our experience it takes

from five to eight days for the opening to become established by the cutting through of the rubber ligature. We have made the McGraw ligature operation 15 times with two deaths, but we have used it in the worst class of cases, in which other methods would have rendered many of the operations inadvisable. It is particularly indicated in cancer and by the anterior method. It gives time for plastic union and requires little disturbance of tissues, and as the hydrochloric acid is decreased in cancer, there is little or no danger of secondary jejunal ulcer.

Any of these methods will give good results. In 238 gastroenterostomies for all causes which have been made by my brother, Dr C. H. Mayo, or myself, there was a mortality in the malignant cases of 25%, in the nonmalignant of about 7%. The button gave 7½%, the Mikulicz suture 5%, the McGraw ligature 13% and the Finney operation 3%. The percentage of secondary operations is also interesting and in the total number of cases, 238, there were 14 secondary operations, 6%. In a general way it can be said that the anterior method of gastrojejunostomy gave a slightly smaller mortality, but there was relatively a higher percentage of reoperated cases. Other things being equal, the posterior method gave the best permanent results but at a small increase of risk.

In conclusion I wish to speak briefly in regard to cancer of the stomach. Early operation is a prerequisite, and diagnostic exploratory incision is necessary. We have operated upon 135 cancers of the stomach, of which 34 were radical extirpations; five of these died within a month, and one later from another cause, too early to know the ultimate result.

Of the 28 who recovered it is surprising how few failed to live 12 months or more. One lived three years and seven months, several are alive now, after more than two years. I am convinced that radical operation for cancer of the stomach will in five years give as good ultimate results as after excision for breast cancer. Sixty percent of cancers are located in the pyloric portion, that is, in the movable part of the stomach. The lymphatic arrangements are the same as the vascular, and the dome of the stomach is isolated from this portion, having a different vascular and lymphatic connection. If all of the lesser curvature be removed with the corresponding lesser omentum and all of the body and greater curvature to the left gastroepiploic artery, the results in cancer of the pylorus should nearly equal what might be expected after complete gastrectomy.

The remaining portion of the stomach enables intestinal anas-

tomosis to be made with considerable ease and the gastric pouch rapidly enlarges to assume the function of the stomach.

The operation can be made nearly bloodless by tying at proper points the four blood-vessels which nourish the stomach, much as is the case in hysterectomy. By making the division of the stomach and duodenum with the actual cautery wound inoculation is prevented and by suturing all the coats with catgut through the cauterized area, distal to the holding clamps, neither the stomach nor intestinal canal is opened with the attendant risk of infection. Lastly, by completely closing both duodenal and stomach ends permanently, gastrojejunal anastomosis can be effected in the usual way at a healthy situation on the gastric wall.

The Importance of the Etiologic Factor in the Treatment of Cystitis

BY WILLIAM E. LOWER, M. D., CLEVELAND

To ascertain the cause, and when possible remove it, if not a law, is certainly an old and splendid rule in surgery. There can be no doubt that every conscientious physician and surgeon follows this rule. There is, however, a class of cases to which I wish to call attention, in which I believe this rule is not followed as much as it should be; not because of a lack of desire but because of a want of method or a lack of knowledge of method. Until comparatively recent years there was no good method for exploring cavities without opening them (I refer here particularly to the cavity of the urinary bladder), and that incurred too great a risk to be practiced as a routine. The ingenuity of the instrument-maker in working out the suggestions of the physician and surgeon, and the advent of the incandescent light, has made much of the hitherto impossible, possible.

That the urinary bladder can now be explored almost painlessly and absolutely safely with a light, and without a general anesthetic, is perhaps known to you all, but I am probably safe in saying that not all of you have had the opportunity of seeing it demonstrated, or are fully familiar with its possibilities as a diagnostic measure. An analysis of the various causes producing cystitis will at once show the fallacy of following a single line of treatment. It will also show how absolutely impossible it is to ascertain the cause in many cases except by the aid of the cystoscope.

The exciting cause of cystitis, as in inflammation elsewhere,

is some form of microorganism. There may, however, be bacteria present without pus. Such cases are known as bacteriuria. Other conditions must be present beside bacteria to produce cystitis, namely, traumatism, congestion or retention, or a combination of these. Pathogenic bacteria may be experimentally introduced into the bladder without producing cystitis, but when the urethra is constricted cystitis develops. The four ways by which bacteria may enter the bladder are: (1) the urethra; (2) the kidney; (3) the blood-vessels; (4) the bladder-wall.

The most frequent and direct method is the urethra. The most frequent microorganisms producing cystitis by this route are the *staphylococcus pyogenus aureus* and the gonococcus. The cystitis produced by infection from the kidney is most frequently caused by the tubercle bacillus. This is generally a localized cystitis and is often seen by a cystoscopic examination as an area of inflammation about the ureteral opening. When cystitis is present and due to the tubercle bacillus, a different line of treatment is indicated. Another microorganism entering the bladder from the kidney is the colon bacillus. This, however, may pass on through without producing a cystitis. I have demonstrated such a condition in several cases by catheterization of the ureters. Almost any form of bacteria may enter through the blood-vessels, and the one most likely to pass through the bladder-wall from ulceration in the bowel is the colon bacillus. Other forms found in the bladder are the *staphylococcus pyogenus aureus*, *albus* and *citreus*, and the *streptococcus pyogenes*.

Barth describes in the *Presse Medicale* a case of cystitis following grip in which the *bacillus pyocyaneus* was demonstrated in pure cultures. Faltin has also reported similar findings in 4 out of 86 cases of cystitis. In 15 other cases it was associated with other bacteria. Neither urinary antiseptics internally, nor irrigation of the bladder destroyed them. However, the symptoms of cystitis abated, and although the bacilli were still present, they seemed to have lost all their virulence and persisted as ordinary saprophytes.

No less than 30 species of microorganisms have been found in pathologic urine. The bacilli most frequently found are the *urobacillus liquefacians septicus* and *bacillus coli communis*. Of these the latter are by far the most frequent. Two other species of microbes found in pathologic urine are the gonococci and the tubercle bacilli. There is some doubt whether they are ever the cause of cystitis alone, but in combination with other bacteria they are important factors. It has been shown that the typhoid bacillus

is present in the urine in about 21% of all cases of typhoid, and cystitis from this organisms is, therefore, not uncommon. Anti-septic bladder irrigations and urotropin generally clear up these cases. I have purposely not considered catarrhal cystitis for it is very doubtful whether such a condition should be recognized.

The predisposing causes are:

1. *Any obstruction to the urethral passage:* The most important of which, in early and middle life, is stricture of the urethra especially of the deeper passage. When a stricture is the cause, no amount of irrigation of the bladder with the traditional boric acid solution will cure it. The treatment is at once suggested by the cause. The obstruction must receive the first attention. Often when the obstruction has existed for a long time and there has been much over-distension, diverticuli are formed and from these sacculi pus cannot be washed away by the usual methods employed in irrigation of the bladder. Such a condition also occurs in the interstitial variety of cystitis. Suprapubic or perineal drainage is the line of treatment. I have seen this condition a number of times.

One case in particular offers a striking example. In this case there was a great amount of very foul-smelling pus in the urine. It required prolonged irrigations to get the solution clear enough for cystoscopic examination. The bladder held 400cc. of boric acid solution without any discomfort. The top of the bladder was comparatively healthy, but on the fundus were many trabeculae and between these pus cavities were found. At one point there was a distinct diverticulum filled with a whitish substance. By bringing the point of the cystoscope down upon it, it was found to be a cavity filled with pus. Prolonged irrigation had failed to empty this and yet the solution came away comparatively clear. It had been washed over, and not out. The solution came away so clear, in fact, that I had no trouble in getting a distinct view of the bladder until I dislodged the pus in the pocket. This patient has been, and is still being irrigated without very materially reducing the amount of pus. He expects to submit to drainage of the bladder, which I am sure offers the only successful line of treatment.

2. *Obstructions from enlargement of the prostate, which occurs most frequently in elderly subjects:* In this class of cases the proper line of treatment is also to remove the cause. The propriety of this, however, cannot be taken up in the time allotted for this paper. One thing is certain, however, and that is, the

cystitis will not get well so long as the obstruction remains, although bladder irrigations may be palliative. Suprapubic drain offers the greatest relief when the obstruction cannot be removed.

3. *Retention of urine from paraplegia when it involves the spinal centers which control the bladder:* Attention should be directed to the cause of the paralysis and when due to gummata, traumatism or benign growths, much can often be done. The bladder should be irrigated and kept as clean as possible. As a rule the prognosis is grave.

4. *Toxic effect of certain drugs, as cantharides and turpentine:* When the cause is removed the cystitis as a rule subsides quickly.

5. *Tumors of the bladder:* Benign tumors should always be removed, and in some cases malignant tumors have been operated upon with a fair degree of success. The decision to operate will depend much upon the appearance of the tumor as seen by the cystoscope. In eight cases I have demonstrated the cause of the cystitis to be due to growths of the bladder. Some of these cases had been treated for years for cystitis without any knowledge as to the origin of the trouble. Unfortunately in four of the cases these tumors were malignant. Two have since died, and the diagnosis was confirmed at postmortem findings.

6. *Ulcerations of the bladder:* When ulcerations of the bladder are the cause of cystitis it is very important to know whether or not the ulcerative areas are of tubercular origin. This is determined by the general appearance of the ulcer as seen by the light and by the presence of the tubercle bacilli in the urine. Direct application of a caustic to a simple ulcer is generally sufficient for a cure, especially if followed by some antiseptic wash. Tubercular cystitis is often secondary to tubercular trouble elsewhere, and is most intractable to treatment. Constitutional treatment is of the utmost importance, and sometimes is sufficient to bring about a satisfactory recovery.

7. *Calculi and foreign bodies in the bladder:* Calculi, as the cause of cystitis, which have not been recognized by the sound, are of frequent enough occurrence to deserve especial attention. Of this class I have six cases to report. In one case the cystitis had existed for more than two years, within which time the bladder had been thoroughly sounded, but no stones were detected. All manner of medicine had been used by irrigation. When the case came under my observation I sounded the bladder because of the patient's objection to the cystoscope, but I was unable to detect any stone. The urine contained considerable pus and a

great number of microorganisms. After several months' treatment, without much improvement, I again suggested illumination of the bladder. This was denied me for some time longer but finally the request was acceded to. The patient was anesthetized because of an unusually sensitive urethra, and also to make a suprapubic operation should the findings warrant drainage. The light revealed a calculus behind the prostate. A suprapubic opening was made and instead of one, six calculi were removed. The cause having been removed, the cystitis subsided and the patient, an invalid for more than two years, was again able to attend to his work. During all this time repeated careful soundings did not reveal the presence of stones.

In another case in which there had been cystitis with hematuria and clinical symptoms of stone, none could be detected with the sound. Illumination of his bladder showed a mass behind the prostate, although it could not be stated positively that it was a stone. The diagnosis rested between an encysted stone and a benign growth. Suprapubic cystotomy was made and three stones which had been covered with mucus were removed.

A third case, a male, aged 68, who had been treated for bladder and kidney trouble for many years, came for a cystoscopic examination to see if the trouble could be located. One thing he emphasized; that he would take no more medicine, and his reason was: "I have taken barrels of it." A light in the bladder showed a very rough calculus, tapering at one end with a distinct depression where it was constantly being gripped by the vesical sphincter. A suprapubic cystotomy, removal of stone, and drainage gave absolute relief.

Two other cases were sent to be operated upon for stone, but the choice of method, whether it should be a cutting operation or a litholapaxy, could not be determined without the cystoscope. Cystoscopic examination in each case demonstrated large uric acid stones, contraindicating litholapaxy.

In still another case, in a woman, the cause of the cystitis was due to the presence of a catheter, which, through an oversight of an abortionist, was inserted into the wrong organ. This had been in the bladder for six weeks, causing a most violent form of cystitis. The removal of the cause was followed by a speedy recovery.

These are some of the more striking cases in which the cause was not discovered by the old method of sounding. In the cystitis of women there is generally found an inflammation over the trigonum or the fundus. The most frequent microorganisms

in these cases are the staphylococcus and the colon bacillus. In quite a percentage of the cases of cystitis in women, irrigation does not give relief and direct application must be resorted to. This is most satisfactorily done by the aid of a Kelly speculum, through which the application is made. The speculum is then removed and the applicator drawn out through the urethra. In this way the solution is not rubbed off by the introduction, but all is squeezed out by the bladder-walls and sphincter when it is removed, and the application is made directly to the diseased area.

As to symptoms, frequent urination, pain, and pus in the urine are the principal ones in the acute stages. As the case becomes more chronic, the first two disappear to a greater or less extent and only the latter remains, and when only pus is present the greater is the difficulty of diagnosis, and the more important and valuable is a cystoscopic examination. Within the past year I have had between 80 and 100 cystoscopic examinations, and in no case have there been, to my knowledge, any bad results following, which were attributable to the examination. Like many other instruments, the cystoscope is not infallible, the errors being caused by an incorrect interpretation of the findings, but these errors grow less with experience. A thorough knowledge of the appearance of the normal bladder is absolutely essential before it can be of any aid in diagnosing pathologic conditions.

From the foregoing the following deductions may be drawn:

1. The causes of cystitis are many and varied.
 2. The treatment of cystitis is governed by the causes.
 3. The steel sound is of little use as a diagnostic measure in diseases of the bladder.
 4. The cystoscope is the safest and most reliable method of exploring the bladder.
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Some Anomalous Cases of Gastric Disease

BY JOHN DUDLEY DUNHAM, M. D., COLUMBUS

The definition of my subject should perhaps first occupy our attention.

The examination of the stomach-contents after test-meals has been practiced for many years by a large number of medical men.

That the diagnoses made by such examinations are trustworthy is attested daily by men in this especial field as well as by internists generally.

The word "anomalous" is therefore used advisedly and indicates a departure from a general rule.

Case I, May 10, 1903: Mr H. K., 55 years of age, seen with Dr C. A. Howell, had complained for four or five months of pain in the epigastrium, vomiting and weakness. During this time his weight had decreased 10 pounds. The patient was anemic, although he was not markedly cachectic. Occasionally large quantities of fluid had been vomited. The "coffee-ground" appearance had never been observed. Examination of the chest revealed nothing abnormal. The abdomen over the site of the pylorus contained a tender area, and the splashing sound was elicited below the navel.

Examination of the stomach-contents after an Ewald test-breakfast, showed the quantity obtained to be 250 cc. hydrochloric acid, total acidity 98, lactic acid absent, and the ferments normal.

After its evacuation, the stomach was inflated by means of carbon dioxide gas. The outline of the greater curvature was three finger-breadths below the navel.

The general condition of the patient together with the excessive acidity indicated a diagnosis of pyloric stenosis caused by an ulcer, and an operation for the relief of the difficulty was decided upon. Within a few days the patient became rapidly worse and died before an operation could be performed.

At the necropsy the stomach was found occupying practically the entire anterior portion of the abdominal cavity, the greater curvature extending to the pubic bone. About the pylorus a mass of hardened new growth was observed. The other abdominal organs were found apparently in a normal condition. No secondary involvement outside the stomach and duodenum was demonstrable macroscopically.

A subsequent histologic examination of the growth showed it to be a scirrhus carcinoma.

The anemia without emaciation and the progress of the disturbance as indicated by the great dilatation are irregular symptoms in this case as it was ultimately diagnosed.

The presence of hydrochloric acid, which one rarely finds in advanced carcinoma, and the absence of lactic acid, which is, as a rule, found in carcinoma at such a stage, are even more unusual symptoms in this class of cases.

The most interesting feature was the anomalous condition indicated by a total acidity of 98. One hour after the Ewald test-breakfast the normal acidity is 40 to 60. In gastric ulcer the acidity varies from 80 to perhaps 110, or even higher. (The degree of acidity is expressed by the number of cubic centimeters of a one-tenth normal sodium-hydrate solution required to render neutral or slightly alkaline 100 cc. of the filtrate.)

Case II, August 14, 1903: Mrs G., 66 years of age, was seen at Mt. Carmel Hospital at the request of Dr C. S. Hamilton. This patient noticed an enlargement in the abdomen about three months ago, which had been increasing. She had some dyspeptic symptoms with very little pain. The patient was anemic and quite pale. The tumor was situated over the pyloric region.

The analysis of the stomach-contents indicated an absence of hydrochloric acid, the presence of lactic acid, and a slightly acid reaction. The total acidity was 2.

The diagnosis of pyloric carcinoma was made. Upon opening the abdomen a gall-stone was found impinging upon the stomach immediately at the pylorus.

The removal of this tumor relieved the patient.

We have present in this case some of the pathognomonic signs of carcinoma. The anemia, the presence of tumor over the pyloric region, the absence of hydrochloric acid, the low total acidity and the presence of lactic acid are important symptoms in such a diagnosis.

The chemical findings may have resulted from *achylia gastrica*, or, on the other hand, considering the age of the patient, there may have been atrophy of the glands.

Case III, October 11, 1902: Miss M., a nurse about 33 years old, was referred to me by Dr Dickson L. Moore. This patient had been suffering with stomach trouble for three years. She complained of nausea, vomiting and headache. The headache is so severe at times as to incapacitate her for work. These symptoms recurred at intervals of a few weeks and had become more frequent. There never had been constipation. A feeling of fullness with discomfort was habitual after meals. The patient had a marked sitophobia, hence her diet was very limited. After a test-meal the particles of roll were found unchanged, and there was a very small amount of fluid. Hydrochloric acid and lactic acid were absent. The total acidity was zero. A provisional diagnosis of *achylia gastrica* was made. The treatment given was lavage every other day with faradism twice a week by means of the deglutable electrode.

A test-meal given 10 days later showed the same conditions chemically, although the headache had disappeared. One month after treatment, an examination gave the following results: Hydrochloric acid, total acidity 45, and ferments normal. The subjective symptoms had largely disappeared.

This procedure was continued for eight weeks, increasing the interval of time between treatments. On May 6, of this year, the patient reported no return of her symptoms.

This is an interesting case because the subjective symptoms resemble hyperchlorhydria. The distress, burning, etc., after meals one does not usually find in cases of hypopepsia. It is supposed that the discomfort and burning after meals in such con-

ditions are due to irritation of the gastric mucosa by the coarser particles of food. The fact that fluids escape from the stomach at an earlier period after meals in cases in which no gastric juice is present, favors such an explanation.

Case V, February 25, 1902: Mr P., aged 60 years, occupation farmer, one year ago began to have pain in the stomach which was described by him as a "heavy gnawing pain." He had no headache. His bowels were irregular. His weight one year before was 165 pounds, while when he first presented himself for examination it was 110 pounds. The man had a decided cachexia, was weak, and unable to perform any duties about the farm. The abdomen when palpated was found tender over the stomach, and painful on pressure. The heart was normal and the arteries atheromatous. Blood examination showed hemoglobin 30%, red corpuscles 2,560,000, and leukocytes 4,000. Stained preparations showed the changes found in the reds in secondary anemia.

A test-meal showed hydrochloric acid, total acidity 110, no lactic acid, and ferments normal.

The patient was advised to enter the hospital and undergo the Leube Ziemsen treatment for gastric ulcer. He was unwilling, but after several weeks of ineffectual treatment he consented to place himself under the care of Dr R. W. Monhank, of Royalton, where the patient resides.

Under the rest treatment, carried out by the Doctor, he improved greatly, gained in weight and noted a diminution in the subjective symptoms.

The gnawing pain, emaciation, prostration, cachexia with the secondary anemia, make a fairly clear picture of cancer of the stomach, but examination after the test-meal enabled us to make a correct diagnosis in his case.

The Association of Diseases of the Tube and Ovary with Appendicitis

BY ROBERT H. SUNKLE, M. D., CLEVELAND

Demonstrator of Gynecology, Western Reserve University and Lakeside Hospital

In dealing with diseases of the tubes and ovaries the possibility of the existence of an associated appendicitis is becoming more and more recognized. Even a limited amount of experience along this line of work will convince one of the fact that no small percentage of cases of appendicitis are secondary to tuboovarian disease, and that many times women are hurried off to hospitals for appendicitis when, at operation, the appendix is found to be perfectly normal, the symptoms of disease of the tube and ovary having been mistaken for those of appendicitis. Therefore, it

becomes of the greatest importance when operating for tubo-ovarian disease or appendicitis to consider carefully the possible association of the two conditions.

Before reporting those cases pertinent to this subject, I quote briefly from the experiences of others. Out of 100 abdominal operations undertaken not primarily for appendicitis just prior to January, 1903, Robb removed the appendix in 46 cases, this additional procedure being thought advisable whenever the appendix was found to be either occluded, adherent, hypertrophied, markedly flexed, and in those cases in which there was any evidence of periappendicitis.

In 200 abdominal operations undertaken not primarily for appendicitis, Kelly removed the appendix in 25 cases, or 12½%.

Legnen reported two cases in which extrauterine pregnancy was diagnosed by him as appendicitis. The first instance occurred in a woman, aged 48, who was seized with violent abdominal pain; the abdomen became distended and the temperature rose. There were no signs of any tuboovarian or uterine disturbances. At operation a normal appendix was found and a ruptured tube, the latter being removed. The second case was that of a young woman, aged 20, who showed similar symptoms with the addition of vomiting. At operation the appendix was found to be normal, but the left tube had ruptured during the course of an extrauterine pregnancy. In neither one of these cases had there been any menstrual irregularity, uterine hemorrhage or the usual general changes noted in pregnancy. Moreover, in both cases fever was present.

Downes reported two cases in which the appendix had been removed by a surgeon doing general work. In neither had the symptoms abated. After a careful gynecologic examination, the right tube containing pus was removed, and a complete recovery followed in each case.

Lusk mentions a case of tubal pregnancy in a young girl that was diagnosed by an eminent surgeon as appendicitis. All who examined her thought they felt the thickened appendix. She gave no history of passing over a menstrual period. At operation a tubal pregnancy was found.

Richelot mentions six cases of appendicitis in females in which it was impossible to make a positive diagnosis before opening the abdomen.

The differential diagnosis between appendicitis and tubo-ovarian disease is ordinarily simple. In many cases it is next to impossible to differentiate between the two, more especially

when the symptoms run into one another as in the cases above cited, or when a vaginal examination without anesthesia does not reveal any pelvic trouble.

The discussion of acute fulminating appendicitis does not come within the scope of this paper as its diagnosis is seldom questioned, nor has it anything in common with salpingo-oophoritis.

R. T. Morris says that a rigid abdomen is the principal differential sign between acute appendicitis and salpingitis.

In chronic attacks of appendicitis the greatest intensity of pain is elicited by pressure upon the abdominal walls over McBurney's point, while in tuboovarian disease the greatest intensity of pain is elicited by pressure on the abdominal walls lower down in what is known as the ovarian region, or by pressure exerted in the vagina.

The seat of the greatest tumefaction is likewise of importance. In tuboovarian disease a thorough digital vaginal examination in most cases discovers the diseased uterine adnexa, and pressure upon them elicits the pain previously complained of by the patient.

In appendicitis the pain produced by pressure often radiates toward the hypogastric region, while in salpingo-oöphoritis it radiates toward the pubic region of the pelvic cavity.

Nausea, stomach and bowel disorders, or an intact hymen would point toward appendicitis, while disorders of the functions of the genital organs, or fixity of the uterus, are evidences of disease of the tube and ovary.

The infection travels in many cases along the ligament of Clado, the so-called appendicular ovarian ligament. This ligament is found present in about one out of every ten patients and extends from the mesoappendix to the right ovary. It contains a small blood-vessel from the right ovarian artery to the vermiform appendix, and also a chain of lymphatics. By this anatomic arrangement a direct communication between the appendix and the right tube is established. In other cases, even in the absence of the ligament of Clado, when the right tube and ovary are subjected to frequent attacks of inflammation, the appendix becomes adherent to these organs and appendicitis or a periappendicitis results. This is most likely to happen in cases in which the free end of the vermiform appendix hangs down over the pelvic brim and is close to, or in contact with, the inflamed tube and ovary.

To prove the source of primary infection is oftentimes impossible. When the colon bacillus is found in the diseased tube and ovary, it is evident that the disease has been primary in the

appendix; whereas, when the gonococcus is found in an inflamed appendix, the infection has been primary in the right tube and ovary.

In cases in which the presence of the streptococcus or the staphylococcus can be demonstrated in both organs, it is often impossible to determine the primary seat of the disease.

The appendix should be removed during all gynecologic abdominal operations if it shows the slightest deviation from the normal, providing that time and the safety of the patient permit it.

I believe that the day is not far distant when every appendix will be removed in all abdominal operations other than those for appendicitis, whether the appendix is diseased or not, providing the safety of the patient permits it. The operation in itself is practically devoid of danger, and the patient is thereby saved the future risk of an attack of appendicitis and of an abdominal operation during the acute stage. Many appendices show disease when examined microscopically, when macroscopically nothing abnormal could be detected.

To break up adhesions about and around the appendix is not enough, as these may form again and become an important factor in producing a dangerous appendicitis, peritonitis, or intestinal obstruction.

The incision for chronic appendicitis associated with disease of the tube and ovary, or in cases in which the latter condition cannot be excluded, should be made in the median line, since this will allow of thorough exploration of the entire pelvic cavity and the removal of all diseased structures. The cuff method should be used, if possible, as it is probably the most efficacious for the avoidance of adhesions.

The following three cases which I have lately operated upon in the Gynecological Department at the Lakeside Hospital will serve to illustrate the ideas brought out in this paper:

Case I: J. T., aged 22, has had two children and three miscarriages, the last, three months before operation. Menses began at the age of 14, and were regular, but painful. The patient has complained of backache, and sharp pains in right and left iliac regions since her last miscarriage; for a month before admission the pains in the back and lower abdomen have been so severe at times that opiates have had to be administered. She has also had some fever and hemorrhage most of the time since her last miscarriage.

On examination the uterus was found to be sagging in the pelvis and its motility was restricted. The right tube and ovary were adherent, the left tube and ovary formed a mass the size of an orange and were adherent to the surrounding structures.

On opening the abdomen through the median line, there was found a right and left pyosalpinx, and the appendix was adherent to the right tube. The operation consisted of a right salpingectomy, left salpingo-oöphorectomy and appendicectomy. The patient made an uneventful recovery and all her symptoms disappeared.

Case II: B. R., aged 23, has had one child which is four years old; there have been no miscarriages; menses began when the patient was 12 years of age, were regular, but always more or less painful.

Two months before admission to the Hospital, at the time of menstruation, the patient began to suffer from a severe pain of a tearing nature in the right iliac region. The pains became more or less severe up to within a week of her operation, when they became "cramp-like" and came on two or three times a day; occasionally they were so intense that she lost consciousness. She had had some fever at times. She had never complained of pain on the left side.

On examination the uterus was found to be small and adherent posteriorly. The left tube and ovary were deep in the pelvis and adherent. The right tube and ovary were enlarged and adherent to each other forming a small mass. It was impossible to diagnose or exclude appendicitis in this case.

The abdomen was opened in the median line and an adherent mass of right tube and ovary containing pus was found. The appendix was enlarged and thickened and adherent to the mass of tube and ovary. The left tube was inflamed and adherent. The operation consisted of a right salpingo-oöphorectomy and left salpingectomy and appendicectomy. The patient made an uneventful recovery.

Case III: L. M., aged 30, has had five children, the youngest six years of age; there were no miscarriages; menses began at 11, and were never very painful. Four years ago she had what is supposed to have been a severe attack of appendicitis. Two years later she had another similar attack. About a year ago she began to suffer with severe backache and sharp and severe pains in the lower right iliac region. About six weeks before admission the patient had another severe attack of supposed appendicitis. A physician was sent for and diagnosed the case as one of appendicitis and advised immediate operation which, however, was refused by the patient. The attack lasted four days, but the patient complained of pain more or less dull in character up to the time of admission. After the last attack was over she consulted me, and I made a careful examination and decided that the appendicitis was secondary to tuboovarian disease.

The examination revealed an enlarged uterus. The right tube and ovary together formed a mass the size of a goose egg and adherent to the pelvic wall. The left tube and ovary were prolapsed and lay in the *cul-de-sac*, being densely adherent to the rectum.

On opening the abdomen my diagnosis was confirmed. The appendix was club-shaped, thickened and densely adherent to the cecum. The operation consisted of a right salpingo-oöphorectomy, left salpingectomy, appendicectomy and the stitching of the left ovary to the left cornu of the uterus. The patient was completely relieved of all her symptoms.

These cases show the importance of a careful examination of the vermiform appendix in all operations involving the tube and ovary. The removal of a diseased appendix certainly gives a better prognosis for complete recovery, and the patient is not only saved much suffering and further risk, but is also spared the ordeal of a second operation.

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Department of Therapeutics

CONDUCTED BY J. B. MCGEE, M. D.

Gastric Ulcer: J. B. Woodville, in the *Therapeutic Gazette* for October, advises the treatment of gastric ulcer with large doses of subnitrate of bismuth. In treating gastric ulcer, he restricts the diet within narrow limits, allowing nothing by the mouth save sweet milk in such quantities as can be easily digested in each individual case. He also allows the white of one or two eggs beaten up in half a glass of water at intervals of three or four hours. Further nourishment is given per rectum if needed. The subnitrate of bismuth is given in doses of 45 to 120 grains suspended in half a glass of milk three times a day, and is continued without intermission for three weeks. Usually at the end of this time he begins to gradually increase the diet by the addition of animal broths, soft boiled eggs and crackers. He has never seen any indication of poisoning by these large doses of bismuth. He keeps the bowels open by daily rectal injections, giving no cathartic by the mouth.

Nephritis: W. S. Gordon, in the *Medical News* for November 28, states that in the treatment of acute nephritis complete abstinence from food for a while may be of great service, while in chronic nephritis the condition of the blood is such that it must be enriched, and the kidney nourished while its work is diminished. He believes that an exclusive milk diet so often recommended for nephritis may do harm by being abused, and furnishing too much urea, by causing constipation and absorption of toxins, by failing to supply the blood with sufficient nourishment, or by setting up lactic or butyric fermentation. The diet should be suited to the case and a routine diet for all cases is unscientific and should be avoided. In chronic cases irritating diuretics may do harm, but we are fortunate in possessing many agents which are nonirritating and product-

ive of the greatest benefit. It is well to remember that an efficient cholagogue administered before the diuretic or in conjunction with it is a powerful auxiliary in the treatment. Free biliary secretion and open bowels are frequently sufficient to produce a prompt change for the better in the patient's condition. The usefulness of diaphoretics, particularly in acute cases of nephritis, cannot be questioned, and for emergencies pilocarpin stands at the head for efficacy and promptness. Depression may accompany its action, but used with caution, and in cases of uremia, with a strong and tense pulse, it is capable of changing the condition of the patient from one of imminent danger to one of comparative or complete safety. Nitroglycerin is sometimes invaluable; iron stands preeminent when anemia has set in and the blood-vessels need nourishing and strengthening. He confesses to a growing confidence in the old tincture of the chlorid of iron and bichlorid of mercury, dilute hydrochloric acid, and liquor of the chlorid of arsenic are valuable auxiliaries.

Rheumatism: J. P. Williams, in the *Virginia Medical Semi-Monthly*, asserts that rheumatism in children derives its chief importance from its relation to cardiac disease; cardiac complications are very frequent, and to avert their dangers during an attack of rheumatism or to limit its extent, two things should invariably be insisted on. First, confine the patient to the house and in a warm room. Second, if fever is present, keep the child in bed while it continues, even though it may never be above 100° F. Absolute rest and equable temperature are unquestionably of more importance than anything else in protecting the heart during a rheumatic attack. Aside from these measures the treatment of rheumatism in children is very much like that of an adult. In most acute attacks the salicylate of sodium, oil of wintergreen or salicin should be given. Alkalies should be given in all cases especially those with hyperacidity of the urine. Afterward general tonics such as iron and cod liver oil should be given.

Influenza: *Medical Review of Reviews*, for November, quotes Mancel (These de Paris, *British Medical Journal*) as stating that among the sequels of influenza one of the most important and remarkable is the extreme depression from which many patients suffer even after slight attacks of influenza. The gastric symptoms in such cases are always prominent, and in many instances mental symptoms are also present. This state of nervous depression may continue for several months. The best treatment is the exhibition of strychnin and caffein. The former may be given in the usual doses, or as arseniate of strychnin in small doses. In the worst cases subcutaneous injection of strychnin is necessary. Preparations of caffein have a tonic effect in these cases. It may be given in conjunction with benzoate of soda, or subcutaneously in distilled water with salicylate of sodium.

Delirium Tremens: J. R. Clemens, in the *New York and Philadelphia Medical Journal* for October 10, summarizes the treatment of this condition as follows: An essential point is to get the patient to take food, and if old or weak, or if the attack is severe the author gives whiskey or brandy for two reasons, (1) as a bribe to get him to take food and (2) as a stimulant to the heart which is weak, while a further advantage consists in combating the insomnia so constantly present. Milk, raw or peptonized, is given every two hours alternating with strong beef juice. A dose of calomel is given at the outset to be followed by an occasional saline. A bitter tonic in which strychnin holds a place is given, and if the first heart sounds become weak strychnin is used hypodermically. The room should be dark, cool and quiet. If insomnia is present a choice from the following will promote sleep; hydrobromate of hyoscin (1/200 to 1/100 grain) hypodermically; sulphonal or paraldehyd by the mouth; opium and chloral hydrate are positively dangerous by reason of the probable condition of the heart and kidneys. The patient must be constantly kept under observation, and as the delirium may be secondary to the state of the lungs, treatment consists in keeping a constant ear to the heart, and a finger to the pulse, exhibiting stimulants without restraint when necessary.

Bone Marrow: Medicine, for December, calls attention to the value of bone marrow in rickets. Brilliant results were obtained in treating seven rachitic infants, the ages varying from eighteen months to two and a half years. Glycerinated extract of bone marrow was used. It was given by the mouth in doses of from four to five drams daily. The immediate effect of the medication was a rapid increase in the weight, a rise in the hemoglobin, and an improvement in the nutrition of the teeth. It is regarded as superior to all other treatments as the general condition of the patient reacts more promptly to this remedy than to any other. After it is administered there is a rapid disappearance of the pain in the bones.

Typhoid Fever: Egbert LeFevre, in the *Medical News* for January 2, states that against the action of the typhoid toxin on the heart and nervous system, two agents have been especially advocated, *viz.*, strychnin and alcohol. At the present time strychnin is the more commonly used, and he strongly dissents from the present plan of giving strychnin in heroic doses as soon as typhoid fever is diagnosed. It is not unusual to find patients both in hospital and private practice, who have gone through the first week or ten days of typhoid fever so freely drugged with strychnin that their reflexes were exaggerated. In these cases much of the restlessness and distress, supposed to be due to the disease, is actually caused by medication. He believes that patients who are early stimulated to the full physio-

logic limit by strychnin make a slower convalescence, and that they are more prone to vasomotor disturbance and nervous depression during this stage. Strychnin should be reserved until the condition of the reflexes, both cardiac and spinal, show that the disease has begun to affect the nervous centers. The dose should then be regulated to meet the indications. As regards alcohol, he believes that while in the animal and healthy individual it may show no action upon the circulatory system beyond a reflex one, in diseased conditions, especially the infectious diseases, it has a different action. We are all familiar with the fact that large doses can be given in febrile cases without symptoms of intoxication being induced, or the odor of alcohol appearing on the breath, and that under its use the nervous system is quieted and the heart beat slowed. Whether in health alcohol acts as a food is not germane to the discussion; certainly in typhoid fever alcohol acts both as a stimulant and a food, and when the diet is deficient, as when a milk diet alone is given, nutrition is improved and emaciation retarded.

Aconite: Solomon Solis-Cohen, in the *Journal of the American Medical Association* for December 12, states that there is a time in the very beginning of sthenic pneumonia when aconite will do more good than anything else in the pharmacopeia, but we do not often secure cases at that time. He has used it as a routine in the treatment of many cases of mitral stenosis in which the heart is pumping tumultuously, trying its best to push the blood through a narrow opening. The effort is ineffectual, the pulse being thin and weak. With an overacting heart, and a weak and thready pulse, aconite given in very small and successively diminishing doses, continued for a long period of time, has, in his observation, done much good.

Local Anesthesia: An editorial in *American Medicine* for November 7, calls attention to the danger in the combined use for surgical anesthesia of morphin and scopolamin (hyoscin). This method is known as the Schneiderlin-Korff narcosis. Kochman has found two deaths in 235 cases in which this method was employed, besides a large number presenting dangerous symptoms. The method is founded upon ignorance of the physiologic action of the two drugs, the originators stating that they are antagonistic in their action save upon the brain. As a matter of fact, while antagonistic in their action upon the pupil, and to some extent upon the heart, there is hardly an organ in the body on which their effects are entirely antagonistic, while both of them are marked depressants of the respiration, of the peristaltic movement of the bowel and of secretory activity. As the method is being copied into some of the American journals, attention is thus called to it warning against its use.

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EDITORIAL

Scarlet Fever as a Protozoon Disease

Research in the line of microbiology, as indicated in previous editorials in this JOURNAL, has been clearing up for us the etiology of some of the acute infectious diseases which had hitherto baffled the best efforts of the profession. Most recent in this line is the work of Frank B. Mallory, formerly a Cleveland man, and now Assistant Professor of Pathology in the Harvard Medical School.

The ingenuity of the bacteriologists has been practically exhausted in the search for a vegetable organism in any or all of the acute infections, but in many cases without adequate results. The trend of research is accordingly in the direction of parasites of the animal variety, in the class of protozoa. The protozoa which have so far been found in disease are for the most part free in the blood or in the fluids of the body, and their presence in the tissues is secondary in character; but the group now coming into prominence has its habitat in the cells themselves, and chiefly those cells which come under the head of epithelium. The recent work of Councilman, soon to be published in detail, has shown in the skin lesions of variola and vaccinia, bodies which

apparently go through the various stages of development known to occur among protozoa, and which bear as close a relation to the disease as can be demonstrated without isolation in pure culture and successful inoculation. Koch's laws as to the identification of any organism as the etiologic factor in a given disease can rarely be completed in the case of protozoan infections, as culture experiments have been uniformly failures except with two varieties of trypanosomes. On the other hand protozoa have a definite life-cycle with definite successions of forms, enabling us to distinguish them in the stained condition, as cannot be done with bacteria. The portion of Koch's laws which cannot be omitted is that which indicates the absolute necessity of demonstrating the organism in all cases of the disease, and of showing that it occurs in no other disease. This much Councilman claims to have demonstrated in variola, and his work has stimulated further research in other directions. Mallory has found in four cases of scarlet fever that the skin contained bodies, either in the epithelial cells, or between them, which he considers as protozoan in character. They are best seen with ordinary eosin and methylen blue stains, and resemble the malarial parasite quite closely. They lie for the most part in the cells of the lower layers of the epidermis, near the nuclei, but are also found between these cells and in the lymph spaces of the underlying corium. The development, so far as made out, is similar to that in malaria, beginning with a small spore-like form, which increases in size, passing through an ameboid stage, and finally reaching a rosette form which breaks up, freeing the spores which are probably the contagium well known to be carried in the desquamated epithelium. In spite of the diffuse character of the scarlet fever rash, the organisms occur in groups, adjacent portions of skin containing very different numbers. The possibility of artefacts is fairly well disposed of by the fact that of several pieces of skin removed from one patient and treated identically, some showed the bodies, and others did not. That the forms seen are normally inhabitants of the skin is excluded by their absence in sections of skin studied by the same methods from a great variety of patients suffering from different diseases. The presence of the bodies in and between cells which show no necrosis is much against their being degeneration products.

The name suggested by Mallory is "*cyclaster scarlatinalis*," and is chosen on account of the characteristic circle and star-forms which occur in the later stages. The work is not complete, as this preliminary report covers a very small number of cases,

and the cycle of development is not fully worked out, but the drawings and microphotographs, together with the well-known conservatism of the author, make it more than probable that the observations are correct.

In the light of this work, and that of Councilman, it seems not unreasonable to hope that the next few years may give us the causes of the whole group of acute infectious exanthemata, and that the wider powers which follow wider knowledge will give us greater control, both as to prophylaxis and treatment.

Prostatectomy

Prostatectomy has always been considered a rather hazardous operation. The patients who require it are usually old men of feeble stamina and their resistance is usually further weakened by coexistent cystitis or renal disease. Moynihan (*Annals of Surgery*, January, 1904) gives a summary of his results for the past two years. During this time he has removed the whole prostate, together with the prostatic urethra, in 12 cases the operation being performed by means of a suprapubic cystotomy. In the first of these cases it was not his intention to sacrifice the prostatic urethra, but having accidentally done so, he was surprised to see how well the case progressed. This impelled him to try the same plan with others, and the results have been most favorable. The enucleation required but from two to five minutes, and hemorrhage was rarely alarming.

No case was under 56 years of age, and but one of the 12 resulted fatally. This number is not sufficiently large to compare with more extensive statistics, some of which give a mortality as low as 5%, although the average would usually be much higher. Hugh Young (*Journal of the American Medical Association*, October 24, 1903) has also written upon this subject recently and recommends prostatectomy by means of perineal incision and with the aid of a special tractor which he has devised to pull this gland down within easy reach. The special advantage of his method is that the prostatic urethra and bladder are rarely opened, and the seminal vesicles and ejaculatory ducts are not disturbed.

This is an important factor when younger men require this operation, as the procreative power is retained. Young's results have also been excellent, and he claims that the operation is not nearly so formidable as the average practitioner believes.

The Profession and the Legislature

Dr A. J. Crawford, the Representative from Athens County, has introduced to the Legislature a measure entitled "A bill to regulate the sale and distribution of patent and proprietary medicines and to prevent fraud therefrom," which deserves the support of the profession. This measure provides for the offender a penalty for failure to write or print the formula on the package containing the medicine. As excellent as the proposed legislation is, it would be better still should the law require also a statement of the quantity of each ingredient. Dr Crawford's efforts deserve the hearty cooperation of the Legislative Committee of the Ohio State Medical Association—will need it, and will get it.

The patent medicine manufacturers maintain a corps of lobbyists in attendance at the Capitol whose work it is to care for their interests. If we may believe recent newspaper notices, representatives of the manufacturers assert that the passage of such a bill would remove the necessity of advertising by killing their business, in view of which fact we would enlist the support of every physician interested in the betterment of the profession.

A number of the senior medical students of some of the colleges of Ohio have persuaded Mr Munson, the Representative from Franklin County, to present to the House a bill which provides for their exemption from examination on graduation. The measure is similar to the one defeated by the General Assembly two years ago.

The Green County Medical Society, with some prospect of success, has urged upon their representative, Mr George Little, an amendment to Section 6815 of the Revised Statutes, which shall provide that the subject of an operation for criminal abortion may become a competent witness in the prosecution. We believe that if this measure is enacted it would be unconstitutional, for the reason that a criminal is by the law protected in every way against giving evidence hazardous to his own interests.

The Legislative Committee of the Ohio State Medical Association are prepared to push the project for an amendment to the reciprocity clause of the present Medical Practice Act in accordance with the instructions of the House of Delegates at the Dayton meeting.

The Legislative Committee of the Ohio State Medical Association, with its subcommittee, now consists of about 50 physicians; counting also the membership of the special commit-

tees of the County Societies, there are perhaps 200 physicians who have consented to cooperate in this work. For the first time the profession is organized to undertake seriously and in a business-like manner the labor of moulding beneficent medical legislation.

The "Goryous" Fourth

Is it not about time to ask what, if anything, has been done, or will be done, to prevent the destruction of another four and a half hundred children following the next glorious and gory Fourth? When the extent of last year's statistics became impressed upon the public mind, one heard some talk of legislation to suppress the toy pistol, and it began to look as if some definite steps would be promptly taken in this urgently needed reform. What has been done? In seeking a remedy it is imperative to first recognize the thing to be remedied. The toy pistol is a misnomer. Young America no longer delights itself with the so-called, relatively harmless weapon. In its place the small boy of today flourishes a real revolver, generally of 32 caliber, using a crimped blank cartridge which we too well know is dangerous in the extreme within a certain range. Either the sale of such cartridges must be strictly regulated or the possession or use of the same made severely punishable by law. The custom of indiscriminate blank-cartridge firing has absolutely nothing in its favor. It is a vile nuisance and a noisy national disgrace, a danger to traffic, and a source of suffering to thousands of the sick and helpless. It must go.

Apropos of this another "toy" demands attention. For a few cents any irresponsible child can buy a bomb-cane, and a box of explosive tablets wherewith to violate the public ear. While infinitely less dangerous than the pistol and giant cracker, there is a possibility of harm in this popular amusement that should not be overlooked. The tablets which contain chlorate of potash in one form or other are violently explosive and, weight for weight, more powerful than gunpowder. Detonating mixtures containing chlorate of potash are notoriously unstable. That a child who knows absolutely nothing of such matters should be able to buy a box of such tablets, which a chance blow or even a sudden concussion might cause to explode with serious and even fatal effect, is, we think, too great a license for even this privileged and patriotic occasion.

A Home Instance

The editor of *American Medicine* in a late issue very justly denounces the criminal conduct of a writer in, and the publisher of, a wretched little sheet supposed to emanate from the Peruna Medicine Company in describing a method of producing sham scars, for the purpose of "satisfying" school authorities in the case of parents who object to vaccination. Incredible as such deeds may seem, this is by no means the only instance of such practice. Not long ago, during the late smallpox epidemic in this city, when a well-known "anti" was denouncing the crimes of the "poisoning doctors" and wildly inveighing against this eminently life-saving measure, a legally, if not otherwise, qualified physician of this city actually published, or permitted the publication of, a letter in one of our papers under his own signature avowing practically the same act. In substance, this remarkable communication informs the public that, as he, in common with other homeopaths did not believe in vaccination, it was his custom when a child was brought to him for this purpose to produce the necessary scars by vesication and then to fill the certificate of successful vaccination for the satisfaction of the school authorities. That any person holding the honorable title of physician, no matter of what school or pathy, could demean himself to this extent is almost incredible, but that he should in addition be willing to thus vaunt his shame before the public passes the bounds of belief. It is greatly to be hoped that should the opportunity again occur, legal steps will be promptly taken to adequately punish such callous offenders against public safety.

Albumin and Casts in the Urine of Surgical Patients

Albumin and casts seem to occur far more frequently in the urine of surgical patients than one would at first imagine. An address on this subject by Monroe before the American Surgical Association (Transactions 1903) was quoted recently in an editorial in the *Journal of the American Medical Association*. He finds from observations upon a large number of surgical patients that 35% of them show the presence of albumin and casts in the urine, the cause being often impossible to determine. He considers 4,185 surgical cases, from which are excluded all those suffering from obvious renal degeneration, glycosuria, genitourinary disease, erysipelas, or similar conditions. Of this number 500 showed albumin and casts, 60 underwent operation, and 12 were cases of fracture. Notwithstanding the fact that albu-

minuria is generally regarded as a very unfavorable sign when considering operative measures, the immediate results were apparently quite uninfluenced by it; 63 died and 30% of these showed only albumin and no casts. In only two cases was there apparently any chance of ascribing the death to the renal condition. One of these was that of a patient aged 72, who underwent a prolonged operation for advanced carcinoma of the breast, and the other was a case of cellulitis of the arm, with casts and $\frac{1}{4}$ % of albumin in the urine. Age seems to have no special influence, 50% of the cases being under 35 years; and young healthy children seem as often affected as adults. The administration of ether to patients with albuminuria, especially for a prolonged operation, has always been considered dangerous, but these statistics seem to disprove this if the renal disease is not very marked. If only a small amount of albumin with or without hyalin and granular casts be found, it should not influence prognosis or operation in surgical disease, but it should be regarded as a caution-signal, and search for graver renal lesions should at once be made.

The Latest Festschrift

The *Albany Medical Annals* is to be congratulated upon the excellency of its January number. A special effort has been made to celebrate the twenty-fifth anniversary of the paper, and the result has been most satisfactory. The different original articles show careful scientific work and will certainly act not only as a local stimulus but will have a more widespread effect. In all the cities of the land there are great possibilities in the way of contributions to our stock of medical knowledge. Quite often these remain latent, and it is not every place that takes advantage of them. Albany has shown an activity in progressive medical work that some larger centers might do well to emulate.

The *Annals* has our hearty wishes for an even greater measure of success and progress than it has already had in the past 25 years.

Notes from Berlin

BY N. ROSEWATER, CLEVELAND

The number of physicians who go from the United States to Berlin to take up studies are few compared with the number who go to Vienna, and justly so, for the doctor who wishes to see the most material in the shortest time will do best at Vienna,

whereas beautiful Berlin is to the student of medicine like Washington, a city of magnificent distances. The clinics are so scattered that too much time is lost in being "on the go." Berlin is, however, the Mecca for those who desire to study diseases of the digestive tract. This is perhaps due to the fact that a larger number of good men who have worked and written extensively on the subject are located there than in any other one city elsewhere. Here we have Senator, Boas, Ewald and Rosenheim, whose classic works on these subjects are well known, beside Cohnheim, Strauss, Albu, Flatow and others, most of the men having their own polyclinics and giving special courses of one or more months. There were a number of American physicians in Berlin last winter and spring. Over 75 of the number organized and met together once a week on Saturday night and discussed matters of interest, and always ended the evening with a good time. It was the writer's good fortune to join this organization before the summer adjournment. In the fall they are called together by a Permanent Secretary. The Terminus Hotel Restaurant is the rendezvous for American physicians, and word is always passed around to each American or English speaking newcomer that he is to come to the round table at the Terminus and "meet the boys." The polyclinics of Berlin are very numerous as they are located in every nook and crook in the city. They are not strictly charity institutions as the *Kranken Kasse* (public sick fund) pays a small fee for each patient presenting a card for treatment. Five or six physicians band together, each a specialist in a different line (so stated on their signs). They arrange their hours and employ office help who keep the clinic-rooms and apparatus in order and assist in the general routine work of each clinic. While Ewald has his polyclinic at the Augusta Hospital, Boas, Rosenheim, Albu, Cohnheim, Flatow, Joseph, Dührsen, Wassidlo and many others have their polyclinics as above described. The physicians were anxious to raise the fees for these polyclinic cases, but the *Kranken Kasse* officials threatened to send their members to the *Charité* and other hospitals under the auspices of the University. Every able-bodied worker, male or female, must contribute a certain percentage of his wages to this "sick fund." This sick fund system and resultant sanatoria have been abused by both parties to it. Many frauds obtain ill-health certificates, and again, a criticism of the system by one of the clinicians shows how easy it is to make statistics unreliable. This clinician was called to see a cook in a private family who gave absolutely no signs of tubercular disease. To his surprise she was admitted to the hospital.

He wrote to the medical man in charge for an explanation. Reply came that she was admitted as a latent t. b. and would be ready for dismissal in *six weeks*. The family notified her that her services would not be required if she could not come back quite soon. She was discharged *at once* with a certificate of cure and allowed to go back to her place!

This clinician had another case, a bright literary genius whose works are known throughout Germany, who was suffering from tuberculosis. The doctor wrote a history of the case to the physicians who conducted one of the most noted and successful of sanatoria in Europe, but omitted to state the pulse-rate. The physician replied that he would not accept the case *if the pulse were over 100*. I hope our sanatoria will be conducted so as to aim for humanity first, and let record, whether good or bad, be what it may regardless of consequences. Recently a surgeon to whom a stomach specialist sent a case of suspected carcinoma based upon the absence of free hydrochloric acid, found the patient on physical examination to be suffering from tuberculosis. Since this case, Boas sent a young girl to a surgeon with the diagnosis of probable gastric carcinoma based upon a tumor, lactic acid, and absence of free hydrochloric acid. The patient died after the operation, and the tumor, upon examination, was found to be tubercular. Boas claims that hereafter this rare possibility must not be lost sight of before diagnosing gastric carcinoma. Rosenheim tells of a case of suspected pyloric carcinoma which was referred to a well-known operator. No carcinoma was visible, so only a simple gastroenterostomy was performed. Very soon after cancer nodules proved that the surgeon's examination must have been inaccurate. He also says that he has had a great many cases similar to the following: The patient was suffering from gastric retention which began in 1895. In 1899 gastroenterostomy was performed. After nine months the patient grew worse and an operation was performed to release the adhesions. After ten months the patient again grew worse and examination showed retention of 250 cc. He is, therefore, opposed to operations for benign conditions unless repeated effort has been made without any benefit. The larger number of carcinomas of the esophagus in the clinics here seem to me entirely out of proportion to the total number of diseases of the stomach as compared with what I believe is the proportion in Cleveland. Rosenheim uses the esophagoscope very often for diagnostic purposes. The gastroscope is of no practical use as yet. It may not be difficult at times to diagnose ulcer or cancer, *but there are as yet no*

methods known whereby either of these can be excluded with certainty.

Ulcers have been found with subacidity as well as with hyperacidity; without pain as well as with pain, and cancer with normal, excessive or entire lack of free hydrochloric acid, and now, even tumor in addition does not make it certain.

Among the new things, Dr Ritter in the Children's Polyclinic presented several cases of icterus of mild grade with fever which was epidemic during the spring and fall. A catarrhal state of the gastrointestinal tract is all that is noted. Meinert (Dresden) has also described this epidemic. A new use of the phonendoscope for ascertaining which ear is deaf in a doubtful case was revealed to me in Kron's clinic. The tubes leading to the right and left ears are alternately pinched while you tap on the drum of the phonendoscope, thus occluding the air and sound on either side. The patient can tell you which side he heard.

I was invited to a meeting of the medical society, Von Leyden presiding. At that meeting a report was made by the Health Department on the case of the lamented Dr Sachs, the victim of the bubonic plague accident. There was one thing which seemed worth reporting for our benefit, namely, that the Health Department is equipped with a flying laboratory fitted so as to be sent into any part of Germany within 24 hours, and capable of making cultures and studies of epidemic cases on the spot, avoiding risks of transportation and slowness of results. This certainly is worth copying by all State and the National Health boards. There was much justifiable censure for the careless quarantine of this case.

Book Reviews

General Pathology. By Dr. Ernst Ziegler. Translated from the tenth revised German edition (1901), and edited by Alfred Scott Warthin, Ph. D., M. D., Professor of Pathology and Director of the Pathological Laboratory in the University of Michigan. Profusely Illustrated. William Wood and Company, New York: 1903.

In addition to the accurate revision of this edition by the author, the translation shows careful editing with such additions as are necessary to bring the work fully up-to-date. An important addition to the value of this book is the inclusion of the bibliography at the ends of the chapters, and to this have been added such references as have come out later or have been omitted, the latter chiefly American. The illustrations are the familiar ones of the German edition, and are well reproduced. The book is a very valuable one, as the author is in a position to speak authoritatively on his subject, and the material is presented in a clear and comprehensive manner.

How to Succeed in the Practice of Medicine. By Joseph McDowell Mathews, M. D., LL. D., Ex-President American Medical Association. 215 pages. John P. Morton & Company, Louisville, Ky.

The author discusses the various circumstances that influence the success of the young physician who is just beginning the practice of medicine. A few of these depend upon his location or upon the class of people among whom he works, but the majority and the most important are the personal characteristics of the man himself. These are usually of far more weight in determining his financial success than the actual extent of his medical knowledge. These qualities are capable of development and improvement, and Dr Mathews knows how this is possible and how important it is to do so.

McGlannan's Epitome of Organic and Physiologic Chemistry. A Manual for Students and Practitioners. By Alexius McGlannan, M. D., Associate Professor of Physiologic Chemistry, Instructor in Clinical Laboratory, College of Physicians and Surgeons, Baltimore, Md. Illustrated with nine engravings, 12mo, 240 pages. Cloth, \$1.00 net. Lea Brothers & Co., Publishers, Philadelphia and New York: 1903.

The general principles of organic chemistry are first considered and then the various changes produced in organic compounds by physical and chemical agents. The different organic groups are reviewed, and especial attention is paid to their compounds used in medicine. The second part deals with physiologic chemistry, and gives a good idea of the subject in concise form. There is a large amount of information compressed into very limited space, and, as an epitome, the book is very satisfactory.

A Text-book of Obstetrics. By J. Clarence Webster, M. D. (Edin.), F. R. C. P. E., F. R. S. E., Professor of Obstetrics and Gynecology in Rush Medical College, in affiliation with the University of Chicago; Obstetrician and Gynecologist to the Presbyterian Hospital; Obstetrician to the Chicago Lying-in Hospital and Dispensary; Consulting Obstetrician, Chicago Maternity. 383 Illustrations, 23 of them in colors. W. B. Saunders & Company, Philadelphia, New York and London: 1903.

This book is no mere compilation of well-known facts, but displays throughout the personality of the author, and shows his familiarity with many questions upon which he has done original research work. As an example of this we may take the first chapter dealing with the anatomy and physiology of pregnancy. The practical details of the subject are fully given, so that the book will prove an admirable text-book, but this matter is supplemented by a considerable amount of scientific work which recommends it to the specialist.

The appearance of the book is neat and attractive and the illustrations are numerous, many are original, those showing the position of the fetus in utero being especially interesting. The work is a very good one and will undoubtedly prove very popular.

The Perverts. By Wm. Lee Howard, M. D. Second Edition, 8 Volumes, 388 pages, \$1.50. G. W. Dillingham Company, New York.

This novel is intended to draw attention to the importance of heredity in the production of certain psychic diseases, and the necessity for rational treatment of these affections.

Dr Howard's aim is to have the medical profession and the public recognize the fact that these conditions are evidences of disease and are often uncontrollable; the treatment, therefore, should be carried out in appropriate institutions under the charge of skilled specialists and not by imprisonment in ordinary jails, as is often done.

The leading characters of the story are a brother and a sister, the former subject to periodic attacks of dipsomania, while the latter shows a marked sexual perversion; they are members of a family of four children, the offspring of elderly parents of exhausted vitality, and all of them exhibit more or less moral degeneracy.

The grosser details, unavoidable in a work of this nature, are so far as possible omitted, and the book will be entertaining both to medical men and others interested in this subject.

Wathen's Epitome of Histology. A Manual for Students and Physicians. By John R. Wathen, A. M., M. D., Professor of Surgery, etc., formerly Professor of Histology and Pathology, Kentucky School of Medicine, Louisville, Ky. 12mo, 220 pages, 114 illustrations. Cloth, \$1.00 net. Lea Brothers & Co., Publishers, Philadelphia and New York: 1903.

In a work of this sort, dealing with a wide subject like histology, important points only can be emphasized, and the finer details, while often mentioned, must be looked up in a more extensive treatise.

The book's chief usefulness will be as a handy reference work, or as a means of review by students before examination.

A Text-Book of the Diseases of Women. By Henry J. Garrigues, A. M., M. D., Professor of Gynecology and Obstetrics in the New York School of Clinical Medicine; Gynecologist to St. Mark's Hospital in New York City; Gynecologist to the German Dispensary in the City of New York; Consulting Obstetric Surgeon to the New York Maternity Hospital; Ex-President of the German Medical Society of the City of New York; Fellow of the American Gynecological Society; Fellow of the New York Academy of Medicine; Member of the Society for Medical Progress, of the Eastern Medical Society, of the New York County Medical Society, etc. Containing three hundred and thirty-five engravings and colored plates, 8vo, 720 pages, second edition, thoroughly revised. Philadelphia: W. B. Saunders, 925 Walnut Street. 1898.

Garrigues Gynecology has been a standard work for years. This edition, the second, has been revised and amplified; it compares very favorably with the best works on this subject. The anatomy and physiology of the female pelvic organs are fully given, but it seems strange that in mentioning the origin of the membrane granulosa of the Graafian follicle, no reference is made to Clarke's work on the anatomy of the ovary. This is an impor-

tant matter when it comes to tumor formation, and the different ideas might be given; the formation of the *corpus luteum* might also be more explicit.

The practical part of the book is excellent, and numerous references are given to more extensive monographs. The chapters on uterine fibroid and cancer have been entirely remodeled. The author's conservatism is shown in his statement that he considers it unwarrantable to perform a laparotomy for retroflexion alone, this being done only if there be coincident tuboovarian disease or adhesions. The illustrations are numerous, and the appearance of the book is quite up to the publishers' usual standard.

Recent Additions to the Cleveland Medical Library

By purchase: Infectious Diseases, by G. H. Roger; Diseases of the Pancreas, by E. L. Opie; Diseases of the Pancreas, by A. W. Mayo Robson and B. G. A. Moynihan; The Work of the Digestive Glands, by Prof. J. P. Pawlow; Morphinism, etc., by T. D. Crothers; Reference Handbook of the Medical Sciences, Vol. VII; Progressive Medicine, Vol. IV, 1903.

Donated by: Dr Dudley P. Allen, Transactions of the Congress of American Physicians and Surgeons, Vol. VI, 1903; Essentials of Surgery, by Dr E. Martin; Dr C. A. Hamann, Transactions of the Congress of American Physicians and Surgeons, Vol. VI, 1903; Die Indikationen zu chirurgischen Eingriffen bei inneren Erkrankungen, von Prof. Dr Hermann Schlesinger; Journal of Medical Research, Vol. X, No. 3; S. S. Cohen, M. D., Transactions of the Association of American Physicians; Dr A. W. Lueke, Therapie der Kinderkrankheiten, by Dr W. Degre; Dr Edward Martin, Philadelphia Hospital Reports, Vol. V, 1903; Dr R. H. Harte, Transactions American Surgical Association, Vol. XXI, 1903; F. C. Heath, M. D., Transactions Indiana State Medical Association, 1903; Dr H. A. West, Transactions Texas State Medical Association, 1903; Dr C. J. Aldrich, Diagnosis of Surgical Diseases, by E. Albert; Dr B. L. Millikin, Transactions of the American Ophthalmological Association, Vol IX, No. 3, Vol. X, No. 1; Mrs J. Prentice Baldwin, Framed Portrait of Dr Leonard Hanna; A Nurse's Guide for the Operating Room, by Nicholas Senn; The Care and Feeding of Children, by L. Emmett Holt; A Text-Book of Nursing, by Clara Weeks-Shaw; Obstetric and Gynecologic Nursing, by Edward R. Davis; Dr C. J. Aldrich, A Practical Manual of Insanity, by Daniel R. Brower and Henry M. Bannister.

Medical News

O. W. Robe, of Peebles, has located in Portsmouth.

R. Ford, of Greenville, will locate very shortly in Dayton.

Charles Crosby, of West Virginia, has located in Columbus.

The Columbiana County Medical Society met at Salem on January 12.

L. E. Robinson, of Clyde, suffered a stroke of paralysis on January 17.

E. C. Brush, of Zanesville, has been elected President of the Ohio National Guards.

W. M. Johnson was appointed County Physician of Findlay to fill the place made vacant by Harry Babcock.

W. E. M. Ranchous has recovered from his long illness, and has returned to Columbus to resume his practice.

The attendance was very good, considering the unfavorable weather, and those present had a very enjoyable reunion.

The annual report of the Health Department of this city, shows that 9,166 births were recorded during the year 1903.

Senator West, of Logan County, introduced into the Legislature a bill having for its purpose the prohibition of the sale of cannon crackers and toy pistols.

Frank Winders, Secretary of the Ohio State Board of Medical Registration and Examination, filed the eighth annual report of the Board with Governor Nash.

The annual mortality report of the Board of Health of this city shows that during 1903 there were 6,799 deaths. Of these 472 deaths were from typhoid fever.

A. E. Hamilton has been appointed to the chair of ptoscopy at the Ohio Medical University, and Scott Fulton has received the appointment to the chair of diseases of the stomach.

The Youngstown Board of Health is urging vaccination among all the school children, and believes that if this measure is thoroughly carried out there will be no more cases of smallpox in that town.

The Ohio State Board of Medical Registration and Examination issued certificate to practice to the following: Harry L. Sanford, Edward H. Snyder, Burdett S. Frary and Joseph Tanno, all of Cleveland.

The Marion County Medical Society held a meeting at Marion, and A. M. Crane was elected President. A. Rhu read a paper on "Injuries to the Spine." Robert S. Dombaugh, of Waldo, was appointed essayist for the next meeting.

There has been introduced into the New York State Legislature a measure called the "optometry bill" which proposes to extend the field of operation of opticians. This bill is being opposed by the New York State Medical Association.

The Muskingum County Medical Society held its regular monthly meeting at Zanesville on January 13. G. Warburton read a paper on "The Treatment of Some Abdominal Emergencies." Anna Hill completed her paper on "Static Electricity."

The Columbus Academy of Medicine held its regular meeting at Columbus on January 5. R. C. Tarbell was elected Secretary. McKendree Smith read a paper on "Registration of Births," and J. M. Clemmer read a paper entitled "Quarantine Regulations."

The annual meeting of the Toledo and Lucas County Medical Society was held on January 8 at Toledo. The election of officers resulted as follows: President, John A. Wright; Vicepresident, Charles Betts; Recording Secretary, P. G. Tait; Treasurer, W. W. Grube.

During the month of January 225 cases of measles were reported by the Health Department of Columbus. Fifteen cases of typhoid fever developed in one day. It is reported that this large increase in the number of cases of typhoid fever is due to a sewer pipe which broke in the State Hospital.

At a meeting of the Carroll County Medical Society, held at Carrollton, on January 21, a fee bill was adopted providing for an increase of from 75 cents to a dollar with 50 cents extra for night calls. The physicians also established a delinquent list which is intended to protect them from persons who can, but who will not, pay for medical treatment.

The Alumni Association of the Lakeside Hospital, Cleveland, held its sixth annual meeting and banquet on Wednesday evening, January 20, and the following officers were elected: President, Dr L. W. Ladd; Vicepresident, Dr J. C. Darby; Secretary-Treasurer, Dr H. Dittrick; Executive Committee, Drs J. H. Lowman, W. W. Holliday and W. H. Weir.

The annual election of officers of the Clark County Medical Society was held at Springfield on January 4. E. C. Harris, of

Springfield, was elected President; First Vicepresident, G. F. Brubaker, of Springfield; Second Vicepresident, J. M. Buckingham, of Springfield; Secretary, F. P. Ansinger; Treasurer, J. D. Thompson. The election was followed by a banquet, which was given by Dr Myers, of Springfield.

The annual meeting of the Stark County Medical Society was held on January 21 at Massillon. The election of officers resulted as follows: President, L. B. Santee, of Marlboro; Secretary and Treasurer, Frank Da Hinden, of Canton; Corresponding Secretary, Harry A. March, of Canton. A. B. Walker, of Canton, spoke of the progress made during the past year in surgery. T. Clarke Miller, of Massillon, read a paper on "Prevailing Diseases." J. P. DeWitt, of Canton, delivered an address on "Hygiene and Sanitation." "Ethics and Legislation" was the subject upon which J. F. Marchand talked.

The following rules are reported to have been adopted by the physicians of Fairfield County: "Sec. 1—All bills are due when services are rendered. Sec. 2—All accounts must be rendered in January and June of each year, and settled satisfactorily to the attending physician. Any person failing to settle his account in some manner satisfactory to the physician whose services have been rendered, shall have his name placed upon a list which shall be the property of every member of the Society. Sec. 3—Bills may be presented as frequently as may be deemed necessary, between the two seasons of settlement mentioned in Sec. 2. Sec. 4—No physician shall render his services to any person whose name appears upon the list, until proof is presented that the bills which have caused his name to be placed upon the list have been paid. Sec. 5—No member of the Society shall accept a case until the attending physician shall have been discharged and his bill satisfactorily adjusted. Sec. 6—The foregoing rules shall go into effect immediately upon their adoption by the Society."

Deaths

Edwin Freeman, aged 70, died at his home in Cincinnati on January 7.

Hugh Hendrixson, aged 70, died at Grant Hospital, Columbus, on January 18.

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Traumatism of Circumflex Nerve in Shoulder-Joint Injuries

BY FRANK E. BUNTS, M. D., CLEVELAND

It has frequently happened that injuries to the shoulder, such as contusions and dislocations, have been followed by more or less permanent disability totally out of harmony with the apparent severity of the lesion. This disability is due most frequently, I believe, to an injury of one or more of the nerves about the shoulder.

While two or more of these nerves may be simultaneously injured and produce very complex results, I desire at this time to call attention to the one most frequently injured, and the one producing, perhaps, the most serious complications—complications that have only too frequently been mistaken for a failure on the part of the physician to reduce properly a dislocation or to recognize a supposed fracture. I am sure that most of us have seen the deformity and disturbance of function following an injury to the circumflex nerve mistaken for a subluxation of the humeral head, and I have personal knowledge of a few cases in which a proper interpretation of this lesion has saved the supposedly delinquent physician from a law-suit.

Paralysis of the circumflex nerve has been so long recognized and so carefully described that I can only hope to present its history in a systematic way that may possess some advantage. The traumatic paralysees of the arm were known to the physicians of ancient times. Galen, in his *Officina Medici*, refers to Erasistrate, who, 300 B. C., made mention of this complication in luxations of the shoulder; and among the Arabian physicians, Avicenna, in his *Cannons*, also wrote of this paralysis. In latter years the works of Boerhave and Van Swieten contain references

to it. The isolated paralysis of certain muscles, such as the deltoid, consequent upon a trauma, seems, however, not to have been specifically observed by these writers. Desault, at a much later date, mentions two cases of complete paralysis of the deltoid, one of which was permanent and the other disappearing in 15 days. Both of these followed a luxation of the shoulder. Baron Boyer next (in 1822) reports three instances of this isolated paralysis, also the result of shoulder dislocations. In two of these the application of irritating substances is credited with having affected a cure, while in the third case the paralysis persisted. In this last case the deltoid is said to have lost the power of contractility—to have been considerably flattened—and the movements of the shoulder are stated to have been lost.

Soon after, the occasional occurrence of deltoid paralysis gradually came into prominence and received increased recognition. Malgaigne (in 1830) particularly mentions the paralysis of the deltoid among the traumatic paralyses of the arm, and also considers the etiologic factors and causation of these complications. Arloing de Nevers (in 1832) published an observation of a dislocation of the shoulder in which the head of the humerus, when reinstated into the glenoid cavity, could not be held in position owing to the paralysis of the deltoid. The contractility of the muscle was regained by a large blister applied over this area, and the reduction was then definitely accomplished.

Paolo Cumano next (in 1833) reports two observations in which a paralysis of the deltoid followed a luxation of the shoulder joint. The paralysis in both these instances is ascribed to a prolonged pressure by the head of the humerus upon the brachial plexus, and especially upon the circumflex nerve. At this time the writings of Petit, Ollivier, Jobert de Lamballe, Nelaton, and others, mention this affection, Petit attributing its causation to the use of the door and the ladder, which were occasionally used by many surgeons in the reduction of the luxation.

Blandin, in his classification of traumatic paralyses of the arm appearing at this period, accords the paralysis of the circumflex nerve a separate position, and gives it precedence. Since then the frequent occurrence of isolated deltoid paralysis has been commonly remarked upon, and is frequently mentioned as a sequel to dislocations of the shoulder.

Buntzler, in a collection of 112 cases of dislocations of the shoulder, states that in 10 of these cases a paralysis limited to the deltoid was observed to follow; and in seven cases there was a paralysis involving a greater number of muscles. The occur-

rence of deltoid atrophy and loss of function has, moreover, also been frequently observed after traumatism of the shoulder, such as blows, contusions, or falls upon the same. The rate of frequency of this affection after such lesions cannot, however, be definitely determined. In approximate terms it may be stated that, in order of frequency, this traumatic paralysis from these causes stands next to that which follows dislocations of the shoulder, if not numerically equalling it. As a third cause of deltoid atrophy is to be classed fractures of the humeral head.

Other causes which have been assigned to the paralysis of the deltoid are: pressure of the crutch (Gowers, Church, Goodno, etc.); a prolonged pressure over the area of the deltoid, as in miners who, in digging ore, lie for long periods on their left side (Seligmueller); and certain operative procedures in the axilla in which the circumflex nerve may be severed. Senguin, in certain instances, which will be referred to later, gives the prolonged abduction of the arms, as when folded over the head, as one of the causes of deltoid paralysis.

As nontraumatic causes, this paralysis may supervene secondarily to an arthritis, periarthritis, myositis of the deltoid muscle, or, after an inflammation of the subdeltoid-acromial bursa from the involvement of the circumflex nerve in the inflammatory process. In rare instances (according to Herter) the nerve may be the seat of a spontaneous neuritis. The occurrence of paralysis of the deltoid, moreover, has also been frequently observed after rheumatism of the shoulder-joint; and, as stated by Seligmueller, it has been observed after a luetic myositis of the deltoid, and in one instance after typhoid.

Concerning the pathology of this affection, but little has been definitely stated, though various views have been advanced by different writers. When of traumatic origin these may be summarily classified as follows:

1. Compression and contusion of the nerve.
2. Stretching or traction of the nerve.
3. Laceration and complete division of the nerve.
4. Neuritis of the nerve secondary to traumatism.

The view once expressed by Malgaigne, that this paralysis in common with all traumatic paralysis of the upper extremity, is the result of a "commotion nerveuse," can be briefly dismissed without further mention. Similarly, also, the view which has been advanced by Hamilton and others that the paralysis is a direct result of the bruising of the muscular tissue, or of a myositis of the muscle, and, therefore, has no neural factor, can be disregarded.

The most frequent cause of circumflex paralysis is, apparently, the contusion or compression of the nerve. In a brief anatomic consideration of the circumflex nerve as pertaining to its surgical affections, it may be readily divided according to its various positions along its course into three portions, *vis.*, the cervical, axillary, and humeral. Of these, the cervical portion lies in the subclavian triangle of the neck. In this part the fibers of the circumflex are still incorporated in the cervical nerves and in the cords constituting the brachial plexus.

The statements as to the number of cervical nerves from which it takes origin are somewhat variable. According to some authorities the fifth, sixth, seventh and eighth cervical nerves all contribute to its formation, while others give but the fifth, sixth and seventh, or the fifth and sixth cervical nerves. The cervical portion of the circumflex nerve which extends, therefore, from an inexact number of intervertebral foramina to the first rib, cannot be singly involved in traumatic or other pathologic lesions, for the reason of the intimate relationship of its fibers to those which give origin to other nerves of the upper extremity. Traumatic injuries in this portion such as compression, lacerations, or neuritis from injuries, are essentially those of the cervicobrachial plexus, and in consequence involve a group of muscles, and not single muscles, so that little is to be said of this portion of the nerve in the consideration of its isolated paralysis.

In the second, or axillary portion, which extends approximately from the first rib to the quadrangular division of the subscapular triangle, the nerve is in part still incorporated in the posterior cord of the brachial plexus, and in part is found as a single individual nerve-trunk; so that traumatic injuries of this part may involve the nerve and the structures it innervates singly. Posteriorly this portion of the nerve lies in relation to the subscapularis and the posterior axillary wall, while anteriorly the muscular mass of the pectoral muscles serve as a most efficient protection against injuries of an extrinsic nature. Internally and externally, also, the arm and thorax render trauma from without almost impossible.

The third—humeral or terminal—portion of the circumflex nerve extends from the before-mentioned quadrangular division of the subscapular triangle to its terminal nerve-endings within the deltoid, *teres minor*, and integument. Characteristic of this portion is its spiral course, from which the nerve has received its English term of circumflex nerve. In its spiral course it embraces the surgical neck of the humerus, and is superficially usually

denoted at a point two inches below the acromion. The humeral portion of the nerve is situated for the greatest part of its course in the interval between the deltoid and the bone lying in the loose areolar subdeltoid tissue, and in a somewhat inconstant relation to the subdeltoid or subacrominal bursa.

Compression or contusion of the nerve, without a like involvement of other nerve fibers, can occur only in its axillary or humeral portion. In the former, it is a result of a luxation of the head of the humerus; in the latter, the direct consequence of a blow or fall upon the shoulder. When resulting from a luxation of the head of the humerus, the compression or contusion is effected against the posterior axillary wall, the subscapularis, and underlying scapula, at a point shortly prior to the entrance of the nerve in the quadrangular division of the subscapular triangle; or as Tillmann, in connection with paralysis of the circumflex, states: "Compression of the nerves and vessels of the axilla occurs especially when the head remains in the axilla in the vicinity of the lower border of the glenoid cavity."

The compression of the circumflex nerve as a result of shoulder dislocation is, however, usually accompanied by a stretching or traction of the nerve in its third portion, as the entire nerve by the displacement of the humeral head experiences an increased tension. In a specimen reported to be in the St. Bartholomew Hospital, the circumflex nerve, as a result of shoulder dislocation, is stated to be flattened and compressed. In the view expressed by Nelaton that the anatomic disposition of this nerve was an extremely favorable factor for its distension and compression, the combination of these two lesions of the nerve in dislocations was probably already recognized.

The most typical example of pure compression of the circumflex nerve is to be found in its terminal portion, when this injury is the result of a blow or fall on the shoulder. While the thick muscular layer of the deltoid has been said to offer an efficient protection, and the occurrence of such injuries has, therefore, been stated to be improbable, and has also been altogether denied, clinical observations tend to verify the statement that the paralysis of the circumflex is frequently the result of such lesions. The experiments of Weir Mitchell, in which the paralysis resulting from nerves being struck with a whale-bone slip, a thin layer of muscular tissue intervening, was found to be temporary, although in degree complete, admit of no accurate conclusions on the subject in question. It can, however, readily be assumed that even a slight degree of compression of a nerve, situated as the cir-

cumflex is, against a bony surface, can be productive of this lesion, and that, while the thick muscular mass of the deltoid serves in many instances as a protective layer to the nerve, this is not the invariable rule.

The deleterious factor in such instances, moreover, is not always the compression or contusion itself, but a resulting neuritis, which by extension and involvement of further fibers of the nerve, ultimately renders this structure functionally inert. In numerous cases the injury is undoubtedly not to the main trunk of the nerve, but to its terminal intramuscular branches and endings within the deltoid, which may be definitely stated to be more readily affected by the trauma. In such instances, again, a neuritis may supervene, and the whole nerve may be ultimately involved.

The effects of contusion or compression of the nerve are frequently aggravated by the resulting extravasations and inflammatory exudates. Edema, consequent to the injury, is constant, while hemorrhagic extravasations are also frequent. Both of these may be either extra- or intraneural, or may be combined. When extraneural, these extravasations may reach immense proportions before such an effect as compression is produced, as the nerve throughout its course is surrounded by loose areolar tissue. Intraneural extravasations are much more prone to exert a deleterious influence. In a purely serous infiltration of the nerve, a complete paralysis of the nerve is probably not frequently evidenced, and with the absorption of the exudate, moreover, the symptoms of paralysis simultaneously disappear. In the so-termed "apoplexy of the nerve," however, serious consequences are apt to follow, and secondary degenerative changes of the nerve are also more prone to supervene, and, similarly, a neuritis. The paralysis in such instances becomes evident for longer or shorter periods, and may be permanent.

Another cause of compression of the nerve, posttraumatic in origin, is the formation of an undue amount of cicatricial tissue, or fibrous bands, or adhesions. An instance of the latter class is reported in the case of Hilton, who examined the body of a man who had died 13 weeks after having received a dislocation of the shoulder into the axilla. The deltoid was much atrophied; the circumflex nerve was small and was "distinctly lacerated, but its actual condition was changed by some strong cellular adhesions, fixing it with the radio-spiral nerve and the axillary artery to the inner surface of the subscapularis muscle."

The supervention of a periarthrititis after dislocations of the shoulder, or of a peribursitis after inflammations of the subdeltoid bursa, especially in aged individuals in whom a tendency to neurofibrosis exists, is also apt to lead to a weakening of the function of the deltoid, or to an actual complete paralysis of this muscle from the pressure exerted upon the circumflex nerves or its branches by the surrounding fibrous tissue.

Traumatic isolated paralysis of the deltoid from traction of the circumflex nerve may occur either in its axillary or humeral portion. In the cervical portion these lesions, when occurring, do not involve the fibers of the circumflex nerve singly. It is, however, to be noted that that portion of the brachial plexus and the cervical nerves from which it takes origin, as Victor Horsley states, are readily injured in this manner. In a dissertation on the traumatic neuralgia of the brachial plexus, he writes concerning the same that, "There is one part of the body in which stretching of a nerve is not uncommon, and that is in the posterior triangle of the neck. It occurs when the head is forced violently in one direction and the shoulder in the opposite direction; for instance, when the person is thrown out of a wagon the stretching force is exerted along the line of the fifth cervical nerve, the first dorsal at the lower part of the plexus escaping injury. The fifth cervical nerve would be stretched, but the first dorsal would be slackened. It is the fifth cervical nerve, and to a less extent the sixth, which suffer; and the paralysis is limited to the preaxial border of the limb and to Erb's group of muscles, *i. e.*, to the deltoid, biceps, and supinator longus." As seen, therefore, the line of greatest traction is along the cervical nerves and brachial chords in which the circumflex nerve is incorporated. The paralysis resulting from such traction is, however, not limited to the circumflex nerve alone, but involves a group of muscles simultaneously.

In the axillary portion of this nerve traction is exerted in the instances of shoulder dislocation by the head of the humerus, but this injury is probably always accompanied by a contusion or a compression more or less severe in degree. As already stated, the traction force in such instances is most evident in the humeral portion of the nerve, although also present in the axillary portion.

Relative to the traction or stretching of the circumflex nerve, Raymond has lately reported certain instances in which this occurrence is stated to be the result of an abnormal anatomic disposition of the nerve. He reports the case of a male, aged 23, who

fell asleep with both of his hands placed behind his head. On the following day he experienced an inability to raise his arms, as well as a paraesthesia. The examination revealed an isolated paralysis of both deltoids, all other muscles being functionally in good, active condition. There was a partial degenerative reaction of the deltoid, a slight atrophy of the same, and a diminution in the sensibility in the area of the circumflex nerve.

The atrophy of the deltoid, resulting from the extreme abduction of the arm, is explained by an elongation of the nerve, the elongation being due to an abnormal course of the nerve. Dissection of the cadaver, performed for this purpose, has revealed the fact that, in exceptional instances, the circumflex nerve does not wind around the humerus, but pursues a straight course from its origin to its termination. Raymond assumes that in the case reported this anomaly of the nerve was present, whereby the traction on or the elongation of the nerve could readily be explained.

Laceration or complete division of the nerve may be either caused by a luxation of the shoulder or a fall upon the same. In the former the partial or complete loss of nerve continuity affects the axillary portion, and is the result of the severe traction exerted upon it by the humeral head. In such injuries as blows or falls upon the shoulder, the laceration or complete division of the nerve is the result of the violent compression.

Symptomatology: As a result of circumflex nerve injury we have a deltoid paralysis, which renders the patient unable to lift the arm from the side. The deltoid gradually atrophies. The contour of the shoulder changes so as to assume a flattened appearance, and the round head of the humerus becomes easily distinguished, and, as contrasted with the other shoulder, particularly if the patient is fleshy, the appearance is not at first glance unlike that of a dislocation of the shoulder-joint. In extreme cases the great relaxation and thinning of the deltoid make it possible to feel the groove between the neck of the scapula and the head of the humerus, and it has very frequently occurred that this deformity has been incorrectly diagnosed, or interpreted, as an unreduced dislocation of the head of the humerus.

At other times, in addition to the muscular paralysis and atrophy, there occurs an arthritis which results in ankylosis of the joint and prevents the restoration of any considerable degree of function in the joint by a compensatory development of other muscles. This arthritis has been regarded by some as a result of the nerve injury; but when one considers the severe nature of

the associated injury, and the fact that a large percentage occurs among laboring men who often have a chronic synovitis, and the considerable number who give a rheumatic history, I am inclined to believe that it is very seldom due alone to the nerve injury.

Paralysis of the *teres minor* could scarcely be made out unless the supraspinatus is also impaired in its function. It has been commonly stated that the deltoid raises the arm to an angle of 90° , and that from that point the *serratus magnus* raises it another 90° , or to the vertical position.

Duchenne (in 1867) deduced on an electrophysiologic basis that the most powerful action of the deltoid lies in its anterior or clavicular fibers, these alone being able to lift the arm through an angle of 90° . The power of action is then stated to decrease in a posterior direction. The posterior portion—that arising from the scapular spine—is only capable of elevating the arm to an angle of 45° .

Duchenne further states that in a powerful contraction of the entire muscle, the arm may be raised above the usual limitation of the horizontal. While this limitation in the action of the deltoid to the horizontal has been held by the great majority of observers to be definite, more recent observations contradict this view. Steinhausen, among others, emphatically denies the equal proportion of the quadrants of the deltoid and *serratus magnus*, claiming that the normal action of the deltoid is through an arc of 120° instead of 90° .

Trophic changes in the shoulder-joint, which is also supplied by the circumflex nerve, are seemingly of rare occurrence. Church states that the nutrition of the joint suffers and that arthritis is likely to develop. No complications of this nature have, however, been reported.

Of the tegumentary changes, the skin has been described as appearing stretched in some cases, probably from the lengthening of the arm, and as loose in others, from the atrophy of the underlying muscular bed. Anesthesia over the deltoid area is not infrequent, although not constant. Church limits the occurrence of this anesthesia to the lower two-thirds of the deltoid area, but in general it can be said not to be well defined.

The degree of the anesthesia, when present, is variable, varying from complete loss of sensation to no loss at all. More distinct sensory disturbances have occasionally been observed, as in the case of Egger, who refers to the absence of the sense of touch, a diminution in the sense of pain, and of the perception of the faradic current. During the application of the cathodes to

the integument with a fairly strong current, a very noticeable yellowish-white discoloration of the integument, with a distinct lowering of the temperature in the same area, was noted. After such continued irritation a spotted red color appeared in the areas which were first to turn white; and from the periphery red protuberances radiated inward, until finally the red was evenly distributed. This peculiar reaction of coloration in the integument is said to be the consequence of the paralysis of the vasodilator fibers of the circumflex.

Prognosis: In general terms the prognosis is not good, a very considerable number of cases not only losing the use of the deltoid, but become either ankylosed, or fail to develop the synergistic muscle sufficiently to relieve the patient of a very great disability.

We must remember, however, that the dependence of the arm upon the deltoid for its elevation is not total. A synergistic action of other muscles normally exists, which, in a functional disability of the deltoid, can assume a compensatory action. A vicarious action of different muscles normally not synergistic to the deltoid is, moreover, known to occur.

Duchenne, in 1867, reported an instance of rheumatic arthritis of the shoulder-joint in which the deltoid, as determined by its electric reaction, was totally absent. The arm, however, could be elevated to the vertical in an oblique anterior and external direction, the humerus during this movement rotating around its axis in an upward direction. The supraspinatus, with the *serratus magnus* and the middle part of the trapezius, are stated to have assumed the compensatory action of the absent deltoid. One of the most typical instances of this kind, and well illustrative of this occurrence, is the case more recently reported by Kennedy, in which a paralysis of the deltoid supervened after a dislocation of the right shoulder-joint. The man was unable to raise his arm for six months. An improvement in the elevation of the arm, however, gradually appeared, so that (2½ years after) his range of movement and power in that joint was such that only careful inspection could detect any abnormality. The compensatory action of the deltoid, which was totally absent in this case, had been assumed by the supraspinatus and rotators of the scapula, such as the trapezius. Similar cases have been reported by Hoffman, Brothers, Kron, and Lowe.

The muscles which are said to have assumed such function in these cases of the supraspinatus, *serratus magnus*, trapezius, *pectoralis major*, and coracobrachialis. Duchenne, as well as

Kennedy, attributes the power of elevation of the arm in their cases to the true joint action of the supraspinatus, trapezius, and *serratus magnus*. In the cases of Lowe, prominence is given to the supraspinatus and trapezius alone, with preponderance to the former muscle. Hoffman, in a case of this kind, attributes the compensatory action in the elevation of the arm to the *pectoralis major*, and Kron in two cases regards the upper portion of this muscle as the direct elevator of the arm, in the absence of the deltoid action.

Of these muscles the supraspinatus, either singly or conjointly with other muscles, has most frequently assumed the deltoid function. In its anatomic disposition, its origin, insertion, and course, it resembles to some extent the deltoid, so that, from a purely dynamic consideration, it can most logically be regarded as being the most capable of supplanting this muscle and to act as a second deltoid. Duchenne stated that the action of this muscle was an auxiliary one to the deltoid, and gave to it a distinct action of elevating the arm. Clinical observations, he states, have demonstrated that the supraspinatus is capable of elevating the arm to the same height as the deltoid. It differs, however, in its action from the latter in that its power is comparatively much less.

Lowe states that the supraspinatus is capable of assuming the entire function of the deltoid, and furthermore adds that the reason that the arm can be elevated in certain cases of deltoid paralysis is that a variation in the course of this muscle probably exists. In such cases it is assumed to pass directly over the head of the humerus.

The reaction to the electric currents, as in all nerve palsies, gives a fairly accurate conception of the changes going on in the structure involved; and if there is a complete loss of reaction of nerve and muscle to both currents, the prognosis must be unfavorable, as they are almost invariably without hope of recovery. The loss of reaction to the interrupted current, and increased reaction to the continued current, indicates the severity of the case, though there is still a hope after months of treatment of improvement, though rarely of complete recovery. A normal or slightly diminished reaction to both currents makes the prognosis a favorable one.

While paralysis of the circumflex in connection with injuries to, and paralysis of, other nerves about the shoulder-joint is a very common occurrence in the experience of many physicians, yet the reported cases of isolated injury to the circumflex are relatively few. I have collected a limited number, which may

fairly be classed as such an injury, and have tabulated them as follows:

ISOLATED CASES OF CIRCUMFLEX PARALYSIS

No. of Case and Name of Observer	Age	Sex	Occupation	Nature of Accident	Paralysis Noticed	Time after Injury of Last Observation	Result
1. Kron.....	19	M.	Laborer.....	Wagon wheel ran over shoulder (right).	Immediately.....	½ year.....	Arm raised to horizontal by deltoid; Trapezius and pectoralis major hypertrophied.
2. Kron....	43	F.	.....	Fell on right shoulder.	11 months.....	.....	Can be raised to vertical ant. fibers of deltoid, pectoralis major; coracobrachialis. The Supraspinatus, lifts arm to horizontal. The reaction of deltoid entirely gone. Functional motions almost perfect; power lessened.
3. Lowe....	24	M.	Laborer.....	Cement pipe fell on right shoulder.	Immediately.....	6 months.....	Shoulder-joint freely movable; trapezius and supraspinatus hypertrophied; deltoid atrophied completely.
4. Lowe....	43	M.	.....	Dislocation (left)....	.....	2 years.....	Motion free; elevation good; deltoid absent. Muscle eventually restored to its function. Complete atrophy of deltoid; no compensation.
5. Lowe....	.....	M.	.....	Dislocation (left)....	Immediately.....	More than a year ago.....	Lost use of arm.
6. Hoffmann..	21	M.	Soldier.....	Spear wound of neck	Immediately.....	.....	Loss of power and atrophy of deltoid.
7. Leute....	.....	M.	Boatman.....	Dislocation.....	Short time.....	11 weeks.....	Paralysis of deltoid greatly improved; resembles partial dislocation.
8. Leute....	.....	M.	Laborer.....	Injured his shoulder.	Immediately.....	Several weeks.....	Complete paralysis of deltoid. No eutaneas anesthesia.
9. Barling....	.....	M.	.....	Injured his shoulder.	Immediately.....	4 months.....	Complete paralysis.
10. Tiffany....	33	M.	Sailor.....	Dislocated shoulder by extension.	.....	3 months.....	Isolated paralysis of both deltoids.
11. Tiffany....	.....	M.	.....	Fell striking left shoulder on ground.	After reduction.....	.....	Atrophy of deltoid and complete degenerative reaction.
12. Cunsard....	47	M.	.....	Fell from height dislocating right shoulder	Next day.....	.....	Paralysis of deltoid and probably <i>teres minor</i> .
13. Raymond...	23	M.	Mail Carrier..	Slept with both hands behind his head.	After reduction.....	2 months.....	.....
14. Egger.....	66	M	.....	Dislocation.....	.....	8 months.....	Deltoid totally paralyzed, but functional recovery almost perfect. Atrophy of deltoid and <i>teres minor</i> .
15. Block.....	46	F.	.....	Pressure of glandular metastasis from breast cancer.	After removal of splints.	.....	No recovery of deltoid function. Complete atrophy of deltoid (right).
16. Kennedy....	.....	M.	.....	Dislocation of right shoulder and fracture of radius.	Following day.....	2½ years.....	.....
17. Pooley....	30	M.	.....	Fell from high stoop.	Noticed when patient was 3 years old.	8 weeks.....	.....
18. Althrop....	18	.....	.....	No history.....	.....	15 years.....	.....
19. Hilton.....	.....	M.	.....	Dislocation into axilla.	.....	At autopsy, 13 weeks after accident.	Deltoid much atrophied; circumflex nerve very small and distinctly lacerated.

It will be noted from this table that eight, or nearly 50% of the cases, followed dislocation; seven cases resulted simply from a contusion; one from wound in the neck; one from stretching; one from pressure of enlarged gland in axilla.

It is of interest to note the time at which the paralysis was first noted. In most cases it was reported as having been observed immediately after the injury or after the reduction of a dislocation, though in one case 11 months had elapsed. In my own experience it has almost uniformly been observed after splints or dressings had been removed, or in from two to eight weeks. If possible, it would be a distinct advantage to examine for this injury immediately after receipt of injury or reduction of dislocation, not that any appreciable benefit would be likely to accrue to the patient, but because it would aid us very greatly in making a more serious prognosis in an injury of apparently insignificant extent.

While the number of cases tabulated is very small, yet it is interesting to note from a prognostic standpoint the final result. In cases 1, 2, 3, 4, 5, 6 and 16—or about 37%—there was functional restoration of the joint. In cases 7, 8, 9, 11, 12, 13, 14, 15, 17, 18 and 19—or 58%—no improvement in the use of the arm is recorded, while in case 10 the paralysis was greatly improved, but evidently considerable atrophy remained. Notwithstanding the fact of the functional recovery of cases 1, 2, 3, 4, 5, 6, and 16, it is to be noted that in 3, 4, 5, and 16 the deltoid remained completely paralyzed and atrophied, thus demonstrating what a favorable outcome may be expected as a result of compensatory or vicarious action of other muscle previously referred to, and it is the aim of this paper not to repeat the well known measures for treating nerve injuries, which are often most unsatisfactory, but to call attention again to a very common and serious complication of shoulder-joint dislocations and the medicolegal importance of its recognition, and particularly to the fact that even in the most distinctive lesions of the circumflex we should give a guardedly favorable prognosis, and to this end endeavor by proper instruction to train our patient by intelligent gymnastics to develop the vicarious and synergistic action of other muscles than those supplied by the circumflex.

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A Report of a Case of Pulmonary Tuberculosis and Transposition (?) of the Heart

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A rather rare but interesting case came under my observation in November, 1903, a report of which may not be out of order. Mr R. L. S., a machinist, aged 42, gives the following history: His father died of some lesion of the heart, his mother of pneumonia at the age of 76, two sisters of pneumonia (?), and one of typhoid fever. He says that his own health in childhood and early manhood was unusually rugged. During the last 10 years, however, he has been bothered with hoarseness of the voice and a hacking cough, and is losing in weight. Within the last six years he has had three or four attacks of hemorrhages from the lungs. These hemorrhages continued for only a few days and subsided without any treatment whatever. He says he has consulted a physician only a few times during all these years. He has been bothered with morning and evening cough and expectoration, and his health had been gradually failing, though he has not given up his work. He has traveled considerably to regain his health, and has, until very recently, resided several years in California. On November 1, 1903, he was again annoyed with a hemorrhage, on account of which he consulted me at my office.

He was muscular, well developed, not emaciated, and his temperature and pulse were normal. Examination of the chest shows a decreased respiratory movement of the right side with intercostal retraction upon inspiration at the base. The left side of the thorax is more prominent than the right. Tactile fremitus upon the right side is increased over the apex and decreased over the base. On the left side tactile fremitus is decreased. There is marked dulness over the entire right side, and throughout the entire left side there is hyperresonance. On

the right side also there is a demonstrable Wintrich's change of note above the clavicle, and a short high-pitched vesiculotympanic note in the anterior axillary line and the fifth intercostal space. The dulness is less marked in the mammary region of the right side than in any other portion of the same side. The respiratory sounds on the right side are bronchial in character and very loud at the apex, anterior and posterior. At the base the breathing is also bronchial both anterior and posterior, though it is much less distinct than at the apex. There is bronchophony with whispered pectoriloquy and râles above the clavicle and in the anterior axillary line about the fifth intercostal space. The sputum contains tubercle bacilli. The case appears to be one of tuberculosis with complete involvement of the right lung, and possibly breaking down of portions in the apex and the right middle lobe, if there is a right middle lobe. At the base on the right side there is probably considerable pleural adhesion which may account for the intercostal retraction on inspiration as well as the decreased intensity of the respiratory sounds which are, however, typically bronchial in character. On the left side there is a well-marked compensatory emphysema. There is no dulness at all beneath the sternum, and it is probable that the anterior border of the left lung lies well over toward the right border of the sternum.

Upon inspection also one may notice a cardiac impulse upon the right side in the fifth intercostal space just within the nipple line. This impulse is palpable, and there is none on the left side. Excitement increases the force of the impulse but does not produce any on the left side. There is a small area of absolute dulness to the right of the sternum in the fourth and fifth intercostal spaces, though it is rather hard to outline a cardiac dulness here on account of the consolidation of the surrounding lung. However, it can be outlined inasmuch as the dulness is not as marked in the right mammary region as in other areas of this side. On auscultation the cardiac sounds are very loud and distinct to the right of the sternum, and almost inaudible to the left. The sounds are loudest in the fifth intercostal space beneath the right nipple. There is no thrill in this area, neither is there any murmur, though after considerable exertion on the part of the patient one may hear a clear systolic murmur in this area, with greatest intensity at (or to the right of) the right mammillary line, and transmitted a considerable distance toward the right axilla. No murmur can be heard to the left of the sternum. At the base of the heart, or in the right and left second inter-

costal spaces, both first and second sounds are clear and distinct and of about equal intensity.

It is quite probable therefore that in addition to the tuberculosis there is also a transposition of the heart. The signs of aneurism are easily excluded in spite of the fact that the chest is slightly more prominent to the right of the sternum. Pleurisy or pulsating empyema are hardly to be considered. The case was demonstrated to the Clinical and Pathological Section of the Academy of Medicine, on December 3, 1903, and all agreed to the physical signs.

The question, however, arises whether this is a true case of cardiac dextra or whether the heart has been gradually displaced from left to right. It is possible that retraction of the right lung with traction upon the pericardium and the emphysema of the left lung, might greatly influence the position of the heart; but there is present so much respiratory movement of the right side that one can hardly imagine that the lung is much shrunken. The patient is not positive that he has ever felt his heart beat either to the right or the left.

Ten years ago this patient was under the care of Dr Pollock, of this city. Dr Pollock examined the lungs several times, and at the time made the diagnosis of tuberculosis involving the right apex. However, he does not remember, neither do his notes on the case, which he kindly submitted to me, indicate anything about the position of the heart. Five years ago the patient also called upon Finlayson, of Glasgow, for physical examination of the lungs. He says that Finlayson examined him rather hurriedly as he was one of many patients to be seen that morning, and he was told that "the lungs were affected, but the heart was fine." These two observations would all the more make me feel that this was a laterally displaced heart rather than a transposed heart, were it not for the fact that I also said the same of his heart and lungs after the first examination which was rather hurried in my office. It was not until a second and more careful examination that the present condition was observed. I therefore feel that it is quite probable that it is a case of cardia dextra.

The displacements by traction are seldom as complete as is this displacement. In only one case have I seen a complete displacement to the right by emphysema. In that case the entire right lung was destroyed by suppuration through an external stab-wound. Later several ribs were resected which left the patient with a complete pneumothorax of the right side. The patient was seen some years ago in the Allegheny General

Hospital. He was athletic, and as his left lung performed the entire respiratory function with a wonderful chest expansion it displaced the heart completely to the right of the sternum. This is an exceptional case, with conditions entirely different from those in the case reported. In the case in question also the systolic murmur heard best after exertion, on the right side and transmitted toward the right axilla, has considerable significance of a leakage of a mitral valve in the right side of the heart, but there is no transposition of any of the abdominal viscera, and it is well not to be too positive about the transposition of the heart. Transposition is not a common condition; neither is lateral displacement under such influences.

Anchylosis and Caries Following Gonorrheal Infection

BY C. A. HAMANN, M. D., CLEVELAND

That gonorrhea is capable of causing joint affections of various kinds has of late years come to be generally recognized. The presence of the gonococcus has been repeatedly demonstrated, and that it is the etiologic factor can no longer be denied. Koenig, one of the most authoritative writers on the subject, makes the following classification of gonorrheal joint affections:

1. *Hydrops gonorrhoeicus*.
2. *Arthritis serofibrinosa et catarrhalis*.
3. *Arthritis purulenta*—Empyema of the joint.
4. The *arthritis phlegmonosa* form—involving more particularly the para- and periarticular tissues.

It is the purpose of this paper to discuss, in brief, anchylosis and caries as the result of gonorrheal arthritis, and to report several cases illustrating the affections as they appear in the hip-joint.

Anchylosis is a very frequent result of the inflammatory process. It is, of course, due to the formation of intra- and periarticular adhesions. Any joint may be involved, often several of them; indeed, Brodhurst refers to a case in which every joint in the body became ankylosed. In the vast majority of cases there is a fibrous anchylosis; however, true bony anchylosis may occur, as one of the cases to be mentioned will illustrate.

When the hip-joint is attacked with gonorrheal inflammation, there is usually a sudden onset with considerable pain; in one group of cases there is no change in the position of the limb, and there are no contractures. This is the milder form according to

Koenig; but in two of my cases, although there was no deformity, there was extensive destruction of the joint; in the other group there are various displacements and the muscles become contracted. Destruction of the joint surfaces may follow, resulting in ankylosis and shortening, and consequently in lameness.

The methods of treatment to be adopted will appear in the citation of cases:

Case I: *Fibrous ankylosis of hip-joint due to gonorrhea*: Mr S. was referred to me by Dr C. O. Hain. This young man had gonorrhea seven months before I saw him; the hip became painful; fibrous ankylosis in the extended position of the limb developed. There was little, if any, motion of the joint, but there was a sort of *springiness*, and the *periarticular* muscles became contracted on attempting to move the joint. This showed that the ankylosis was of the fibrous character. Under an anesthetic the adhesions were torn asunder, considerable force being used. Subsequent persistent treatment on the part of Dr Hain resulted in marked improvement, although I believe not in perfect restoration of function.

Case II: *Bony ankylosis of the hip following gonorrhea; cuneiform osteotomy of neck of femur*: R. M., aged 17, was referred to me by Dr Smith, of Massillon. The patient contracted gonorrhea in August, 1903. In the latter part of August he went to bed with gonorrheal rheumatism which involved the right hip. No other joints were attacked. He lay with the thigh strongly abducted and flexed, and constantly occupied this position. In November, when he was able to be up, it was impossible for him to walk at first, but in four weeks he could walk without a cane.

I saw and operated upon him early in December, that is, four months after the beginning of the gonorrhea. He was a strong, healthy looking boy; there was nothing abnormal to be detected in any of his organs, except that he still had a urethral discharge in which gonococci were found.

There was marked obliquity of the pelvis, the right side being lower; the lumbar spine was curved, the convexity being to the right. The thigh was strongly flexed and abducted, and the patient walked with it in this position. The right buttock was flattened; the gluteal crease was oblique. The base of the right thigh was broader than that of the left. No atrophy of muscles existed. The distance from the right anterior superior spinous process to the end of inner condyle is $16\frac{1}{2}$ inches; the left side is 20 inches. The trochanter major was not below Nelaton's line (this fact was not observed until the time of operation, because at the examination the trochanter was deeply placed and could not be distinctly felt). The foot was everted.

It will thus be seen that all the evidences of an obturator dislocation were present, and I regarded the case as one of spontaneous or pathologic dislocation of the head of the femur into the obturator foramen.

Under an anesthetic, attempts were made to reduce the supposed dislocation, but it was quite impossible to move the limb in the slightest degree. An incision was then made on the lateral aspect of the hip-joint, the muscular attachments to the great trochanter were divided, the capsule of the joint opened up, and the neck and head of the femur laid bare. It was found that the head was immovably fastened in the acetabulum, in other words, there was complete bony ankylosis. I divided the neck of the femur, close to the trochanter, brought the limb into position, removed a wedge-shaped piece of bone, and then molded the bony surfaces so that they came into pretty close relation throughout. The limb was dressed in extension. The wound healed by first intention. A plaster cast was applied on the seventeenth day, and he was discharged from the hospital. The cast was left on about three weeks. He is now able to walk well with the use of a cane, the hip is extended, and there is some shortening. Not having seen him since he left the hospital, I am unable to state whether there is motion at the new joint which was made or whether bone union has taken place.

Gonorrheal arthritis of the hip-joint, according to statistic reports, is not a common disease. In Halsted's clinic there were three cases in 50. Duplant and Pehu find very few cases on record. Philippi, in 1893, reported one case; Mauclaire, in 1895, reported five cases. In the literature from 1898 to August, 1900, Bloodgood could find no other cases besides those from the Hopkins clinic. König observed 18 cases in five years in the Charité in Berlin.

It happened that during my last term of service at the City Hospital we had two cases of gonorrheal coxitis. The patients lay side by side in the ward, both developed caries of the femur and acetabulum, and both were subjected to excision of the hip.

In my search through the literature I have thus far found but one case of gonorrheal coxitis in which excision was done, and one of gonorrheal arthritis of the knee, in which an excision was made.

It would seem, therefore, that a report of my cases would be of interest on account of their rarity.

Case III: J. K., aged 25, a Hungarian by birth, contracted gonorrhea in June, 1903. He was admitted to the City Hospital, and on July 2, 1903, he began to have pain in the right hip, knee and ankle. Gonococci were found in the discharge from his urethra, and, of course, his joint pains were ascribed to gonorrheal rheumatism. He suffered greatly, contractures developed, and medication had no effect. Under an anesthetic the position of the limb was corrected, and a plaster cast was applied. During the month of October it was noticed that there was considerable thickening about the right hip. The limb was everted, and there was

pain on pressure and on motion. He had had more or less fever, (101° - 102°) but at the time of operation, on November 4, there was no fever.

The question arose whether the condition was tubercular, or whether there was a neoplasm. As the patient was getting progressively worse, it was decided to explore the joint. At the operation it was found that the capsule and periarticular tissues were thickened, granulation tissue was found, some of which was partly organized; no pus was found. The head of the bone was eroded, the cartilage was destroyed, and the bone presented a condition of granular osteitis. The *ligamentum teres* was destroyed, the acetabulum was carious, the cartilage being absent. I thought at the time that it was a case of tubercular coxitis and excised the hip-joint in the usual manner, taking care to thoroughly curette the acetabulum, and to cut away all the diseased tissue.

The wound was drained for a time; it healed promptly, no pus formed and no sinus persisted.

At the present time the patient's general health is excellent, the hip is free from pain, and there is slight motion; indeed, the operative result is all that can be desired.

The histologic examination, made by Dr Placak, the resident pathologist, revealed the following: The cultures were negative. Sections of tissue removed show granulation tissue. No giant cells or evidences of tuberculosis can be seen. Sections stained for tubercle bacilli and other bacteria failed to show any organisms.

Though no gonococci were found in the tissues, I think that there can be no doubt that, in the absence of any evidences of tuberculosis, we are safe in saying that this was a case of caries of the hip-joint due to gonorrheal infection. Syphilis, by the way, was excluded.

I quote the following from Dr Welch: "There are undoubtedly different types of gonorrheal arthritis. The gonococcus, like other pathogenic bacteria, is capable of causing all grades and varieties of inflammation and corresponding to these we may have serous, sero-fibrinous, purulent and even hemorrhagic exudates in gonorrheal arthritis, in the sense that one can positively diagnose the gonorrheal nature of the process simply by the anatomical characters of the inflammation. The most common type of gonorrheal arthritis is that with a serous exudate with more or less periarticular edema, in which there may be fibrin. It has been definitely proven that the gonococcus alone is capable of causing gonorrheal rheumatism."

Case IV: H. S., aged 41, a salesman, was admitted to the City Hospital on October 10, 1903. He contracted gonorrhea about $2\frac{1}{2}$ months before admission, and had some discharge on admission to the Hospital. The pus from the urethra showed large numbers of diplococci which decolorized by Gram's method. The present illness began two months before admission (while he was having a gonorrheal discharge) with more or less fever and

sweating, and some pain in the left hip and knee. There was also pain in the shoulder. For the last month he has lost weight rapidly. He received the usual treatment for gonorrheal rheumatism, without benefit, except that the knee became less painful. (Irrigation of the joint was not practised.)

On December 12, the following note was made: The left hip is very painful on pressure over it, particularly antero-posteriorly; there is pain on attempting motion. The limb is in the extended position. When the joint is palpated bimanually, it is noticed that there is much thickening; indeed this can be seen. The joint resembles very closely the hip-joint of the last-mentioned case. There was no fever. There were no evidences of disease of the viscera.

As he was getting progressively worse it was decided to excise his hip.

The usual incision was made. The capsule and periarticular tissues were thickened and infiltrated; there were masses of granulation tissue and semi-organized lymph in the joint and the *ligamentum teres* was partly destroyed. The cartilage over the head of the femur was in part destroyed, the bone and the acetabulum became carious. No pus was found. The joint was excised, the acetabulum thoroughly curetted, and the diseased soft tissues were cut away. The wound healed by first intention.

The following pathologic report has been made by Dr Placak, to whom I am much indebted for his careful work.

Bacteriologic Examination: Cultures were taken from the tissues around the hip, from the necrosed surface of bone, and from the cancellated bone directly under the necrosed portion. Some were taken from the center of the bone. These were obtained by sawing into the bone with a sterile saw, aseptic precautions being taken. The media used were ascites bouillon, glycerin bouillon and blood serum. The tube of ascites bouillon inoculated from tissue taken from underneath the area of necrosis showed a diplococcus morphologically like the gonococcus, and staining as that organism does. This was a pure culture. The other cultures taken were negative. Those on glycerin bouillon were taken from the center of the bone underneath a necrotic area.

Pathologic Examination: The articular surface of the head shows irregular areas of necrosis, which extend nearly one cm. into the cancellous substance. No pus can be seen in any part. The articular surface is roughened.

Microscopic Examination: Sections were hardened in alcohol and Müller's fluid. Sections are quite cellular and fibrous, containing many blood-vessels. There is considerable congestion. No giant cells, or evidence of tuberculosis can be seen. Sections hardened in alcohol and stained with fuchsin and tolindin

blue showed no tubercle bacilli. Gram's stain is negative. No diplococci could be found in the soft tissues.

Bone sections show a simple necrosis; no areas of tuberculosis can be seen. Stains for tubercle bacilli are negative. Gonococci cannot be demonstrated.

In addition to these two cases of excision of the hip I have excised the wrist-joint for gonorrheal arthritis. The same destruction of the cartilage and caries was found.

A Case of Sympathetic Inflammation of the Eye

BY WILLIAM EVANS BRUNER, A. M., M. D., CLEVELAND, OHIO

The seriousness of sympathetic inflammation of the eyes is fully recognized. There is scarcely any, if indeed any, disease of the eye more dreaded; for despite all treatment, after sympathetic inflammation is once started it may go on to complete or almost complete blindness. And yet, though the outlook may be gloomy, and the prognosis is always extremely grave, we should by no means give up hope nor fail to try the effect of treatment. Not a few cases have been reported in patients in whom the condition has been favorably combated. Many of these, it is true, have been seen at the very beginning of symptoms in the second eye, but in others the disease was well marked when the patient was first seen, or, though seen early, had progressed to a severe type before it began to show any signs of improvement. The following case is a mild one, but is nevertheless a good illustration of the favorable results that can sometimes be obtained in what appears like a very unpromising condition:

C. U., aged 10 years, was brought to me November 22, 1898, with the history that, about a year before, he was struck in the left eye by a button on a string. The eye was much inflamed and painful at the time, and he was under the care of a competent oculist. Several months ago since he started his school work, the right eye began to trouble him. He has difficulty in seeing the blackboard and also in trying to read. He has no pain in either eye and no headaches. There is some photophobia in the left eye but not in the right. Vision, O. D. counts fingers with difficulty; O. S. 6/200. He has some difficulty also in this eye in counting fingers at one foot. Examination of the left eye shows a scar at the outer portion of the cornea, just inside the limbus with the iris attached to the under surface. The iris is drawn to that side so that the pupil is merely a narrow horizontal slit. The iris responds very faintly to light. The pupillary area is covered with a thin layer of lymph. No view of the fundus can be obtained. The right eye reveals numerous fine dots within the layers of the cornea in the lower portion. On the anterior

capsule of the lens are some dark spots looking like remains of posterior synechiae. The iris responds slightly to light; there is no view of the fundus. Here was evidently a case of sympathetic inflammation of the right eye following a perforating wound of the left, and the vision in the originally injured eye was very considerably better than in the sympathetically affected eye. Under atropin the right pupil dilated very slightly and irregularly, while the left pupil was not at all affected. He was put upon protiodide of mercury internally and atropin sulphate locally. The protiodide was shortly increased, and on February 11, 1899, the vision had improved to 6/21 partly in the right eye and 3/30 partly in the left. The ophthalmoscope then showed the pupil of the right eye still very slightly dilated and irregular, a small opacity in the cornea and some opacities on the anterior capsule of the lens. The lens itself and the vitreous were clear. The disc was good size, round, with slight pigment ring. The fundus was high colored, finely granular with some spots of choroiditis indicated by irregular whitish or pale yellow spots throughout, but especially in the nasal portion. In the left eye no view could be obtained of the fundus. He was then put upon mercury and potassium iodid, and the vision continued slowly to improve. March 20, 1899, vision was O. D. 6/9 partly, O. S. 6/15 partly. With occasional interruptions, the mixed treatment internally and atropin locally were continued for some months. Vision then reached 6/9 and part of 6/6 in the right eye and 6/15 in the left. After this the condition remained practically unchanged, and in February, 1900, his refraction was measured under a mydriatic with the following result:

O. D.—.75 spherical $V=6/9$, 6/6 partly.

O. S. plain glass $V=6/30$.

April 14, 1900, he reported that he sees much better with the glasses. Vision with the two eyes equalled 6/6 mostly. In July 27, 1900, he again reported that he was getting along nicely, had been attending school since he obtained the glasses and was having no difficulty whatever with his eyes.

514 *New England Building*

Plastic Operations to Elongate Cicatricial Contractions Across Joints

BY STEWART LeROY McCURDY, M. D., PITTSBURG, PENNSYLVANIA

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It is a difficult problem, in the surgical management of old cicatrices across joints about the neck or between the fingers, to liberate the deformed members and control the tissues so as to guard against a return of the same deformity after complete repair has occurred.

The usual method of severing the contracting band at right angles to the line of deformity promises little toward permanent relief of the deformity. The suggestion that an islet be made as a preliminary step, before severing the tissue to the margin, is not satisfactory. All sorts of plastic operations are constantly being done, and some are successful.

Cicatrices, resulting from burns as they may be found about the face and neck and across the joints, form a class of deformities most difficult to manage, requiring skill, ingenuity and patience

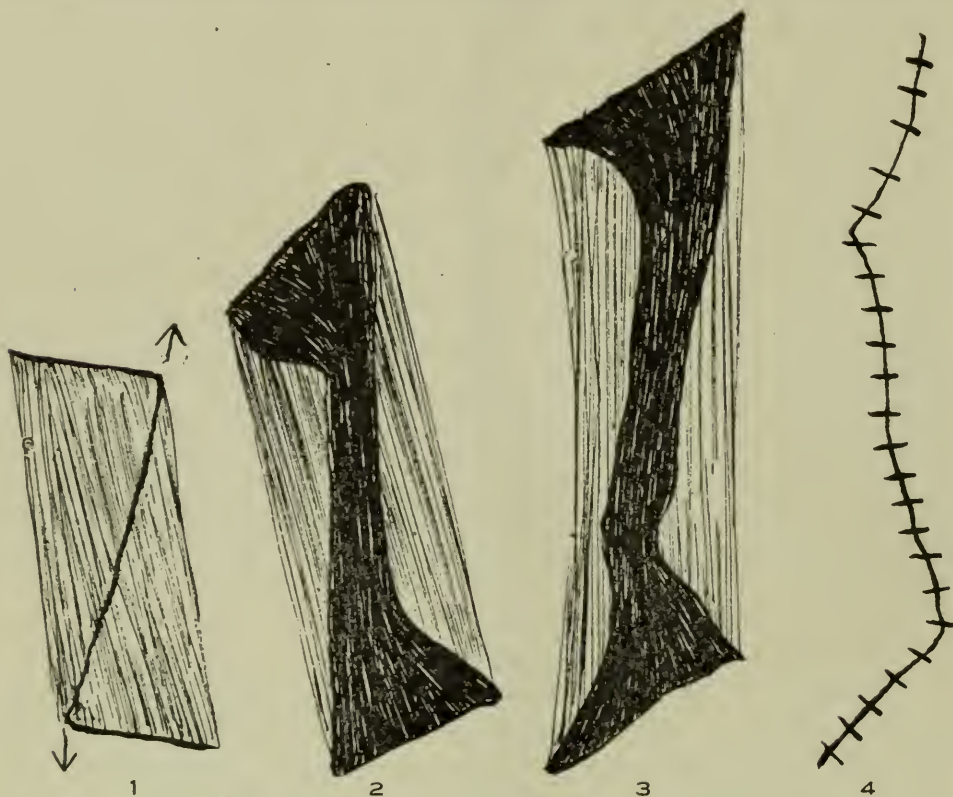


Fig. 1 Line of incision and shaded area showing where skin should be dissected from the other structures.

Fig. 2. Showing partial extension of contracted tissues.

Fig. 3. Showing further extension.

Fig. 4. Showing complete extension and adjustment of flaps with sutures. Observe that the central part of the wound is covered with skin.

on the part of the surgeon, and endurance and faith upon the part of the patient. In cases in which skin flaps can be transplanted from neighboring parts, the operation is simplified, but when this is not the case, skin grafting, either multiple, from some other part of the body or transplants or grafts from foreign sources, is the usual method of procedure. The prime object is to preserve tissue. In no instance should any portion of the cicatricial band be removed. The bands should be severed so as to permit their sliding upon themselves, or they should be permitted to gape where a skin flap can be adjusted.

For bands across joints as at the elbow and in cicatrices of the neck or fingers, the writer makes an incision along the crest of the band from end to end, care being taken to separate the two layers. A lateral cut is made at each end of the first, but on opposite sides, back to the edge of the cicatrix. The angles of the flaps thus made are dissected back for a short distance, (Fig. 1). As the joint is extended, traction is made on the skin at the ends

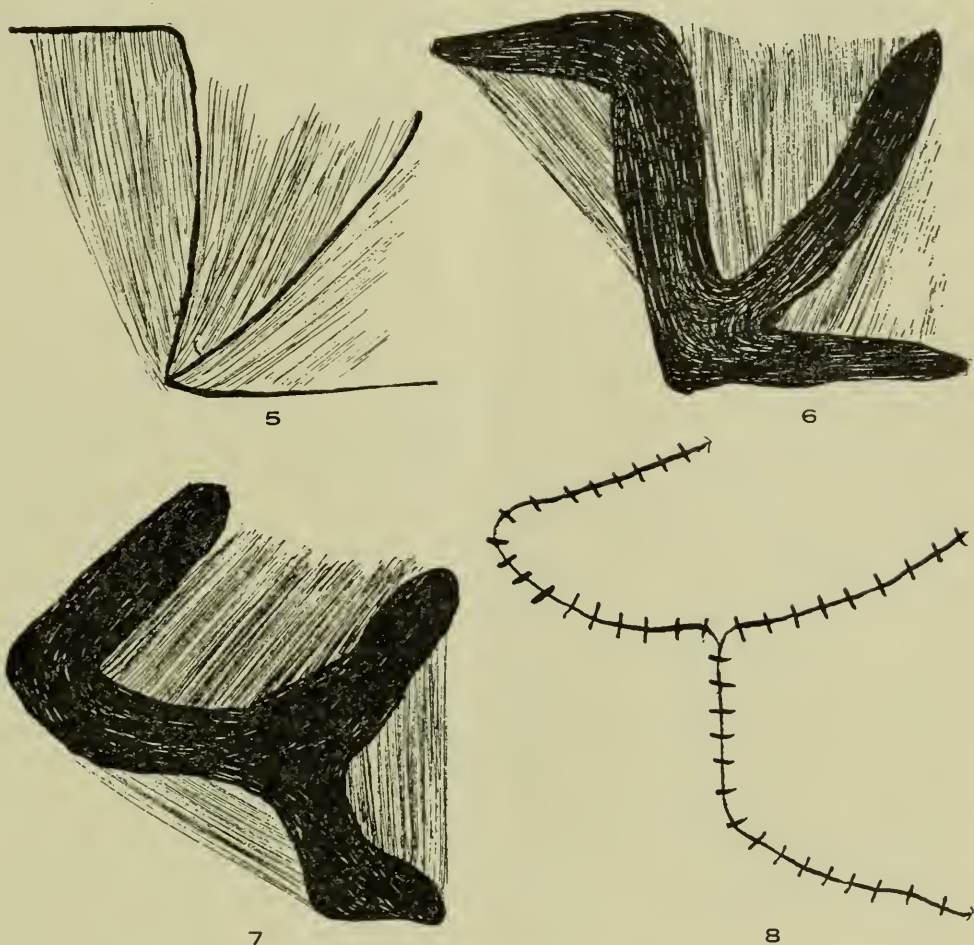


Fig. 5. Modified Z incision.

Figs. 6 and 7. Intermediate position of the flaps as they were shifted from their original to their new position.

Fig. 8. Completed suture.

and a condition as shown in Fig. 2 results; with further traction a condition as shown in Fig. 3 is obtained. The margins of the flaps made by the longitudinal cut, slide upon each other while the end excisions are almost obliterated by the extension. The flaps are liberated as may be necessary to permit complete extension. The edges of the skin, or cicatrical tissue as it may be, are brought together and sutured, as shown in Fig. 4. This may not be possible near the ends, but in the center it is usually not difficult. The advantage of this method of operation is that it fur-

nishes covering for the central portion of the cicatrix where it is most needed, and if an uncovered area is left it is near the ends where the flaps from the neighboring healthy tissues may be switched about to cover it.

Figures 5, 6, 7, and 8 illustrate an operation recently performed to relieve the contraction of a scar resulting from a burn that drew the chin quite close to the clavicle. The result was not satisfactory.

It will be seen that the usual Z incision was made and then a second incision from the apex of the lower angle, as shown in Fig. 5. This permitted more freedom with the flaps, allowing the angular flap to be switched directly across the neck at right angles to the original deforming band, as shown in Fig. 8.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Iodopin: J. T. Moore, in *Merck's Archives*, quoted from *Northwestern Lancet*, states that iodopin, a chemical combination of iodine and sesame oil, is more digestible and assimilable than the metallic preparations. It is manufactured in two strengths, a 10% for internal administration, and a 25% for hypodermic use. Whether given internally or by hypodermic, it is carried to all tissues of the body. When given internally the iodine is liberated in the intestines or in the blood after absorption, and converted gradually into soluble iodids, while the oleaginous principle is oxidized and acts as a nutrient. It is eliminated gradually and continuously and should only be administered for long periods of time. In his experience it does not interfere with digestion or produce symptoms of iodism unless given in heroic doses for some time. He has found it particularly useful in syphilitic diseases. While the value of the potassium iodid is conceded, we find too many cases in which it cannot be carried to its full therapeutic value on account of its effect upon the stomach. It is in these cases that iodopin fills the requirements in the most satisfactory manner. He believes that in iodopin we have a most potent remedy in all cases bearing a syphilitic history, and it may ultimately take the place of iodids in all cases in which they have been used.

Helmitol: In the *Medical Review of Reviews* for December, A. C. Prentice states concerning urinary antisepsis that at the present time hexamethylene-tetramin, or urotropin, enjoys the greatest popularity, its action depending upon the liberation of formaldehyd in the urine, which is thereby prevented from undergoing decomposition, while the pathogenic organisms are either destroyed or inhibited in their growth. Recently, however, attention has been called to the fact that in some cases its use is not

devoid of injurious consequences, as gastric disturbance, diarrhea, hematuria and strangury. In place of urotropin he has for some months been using its anhydromethylen citrate, known as helmitol, and has found it to present some advantages. He believes it to be better tolerated, and in general more efficient. He has noticed no difference in its effect upon the urine whether the urine was alkaline or acid in reaction. This is a point of some importance, since urotropin sometimes fails to act if the urine is strongly alkaline as in cases of ammoniacal fermentation. He usually gives about 10 grains of helmitol four times a day. In cases of urethritis the burning sensation rapidly disappeared, and the urine cleared up in from six to ten days. He is unable to state whether the drug has any diuretic action and the only by-effect noted was a complaint of a dry feeling in the throat after taking large doses four times a day. When the drug was liberally diluted with water, however, this sensation disappeared and failed to return.

Aconite: Arthur E. Elliott, in the *New York and Philadelphia Medical Journal* for January 9, states, concerning aconite as a vasodilator, that the slight fall of blood-pressure following the use of therapeutic doses of aconite is mainly brought about by stimulation of the cardiac inhibitory center in the medulla. Most authorities deny the influence of peripheral (vasomotor) factors in producing this primary slowing and reduction of pressure. By diminishing the force and frequency of the heart's action blood-pressure is lessened, but cardiac sedation is a very different thing from vasodilation, and in conditions of excessive peripheral resistance, with high tension and cardiac hypertrophy, as in chronic nephritis, it is doubtful whether aconite is a substitute for vascular drugs of acknowledged potency such as the nitrites. Circulatory crises in such cases demand relief to the heart from the peripheral obstacle, and he believes that there is some question in regard to the employment of aconite under such circumstances. Experimental evidence indicates that aconite is not an active vasodilator, and in the face of the extremely vicious peripheral conditions which exist in renal disease, it is hardly to be believed that the relief obtained by its action as a cardiac sedative will prove adequate, while any advantage secured in this manner is gained to the jeopardy of the heart. The hypertrophied heart of renal disease inevitably tends to failure, and if the myocardium is already the seat of degeneration, aconite may, under such circumstances, work decided harm by interfering with cardiac nutrition. He states, too, that toward no other drug in the entire pharmacopeia is idiosyncrasy so often manifested, and advocates great caution in its use in cardiac therapy, and cautions as to the unexpected susceptibility which is often manifested toward its action.

The X-ray and Radium: In the *Medical News* for February 6, W. B. Coley thus summarizes the present position of the X-ray treatment in malignant disease: (1) The use of X-ray in

cancer should be limited to recurrent and inoperable cases, with the sole exception of small superficial epithelioma of the face. Even here he believes the results of excision will prove to be better and more lasting, save in the proximity of the eye-lids and nostrils. (2) It is most misleading to report as cures cases in which malignant tumors have merely disappeared under the influence of the X-ray, since speedy return is the rule rather than the exception. (3) At the present moment there is no evidence to prove that any permanent cures have been obtained save possibly in the case of rodent ulcer. In the same issue, F. H. Williams reports 42 cases treated by radium bromid, and states that his experience thus far teaches him that there is much similarity between the action of the radiations from radium and the X-rays; that if the results obtained by radium prove permanent, this new therapeutic agent will be largely used instead of the X-rays, but that the two will supplement each other. He concludes (1) that certain diseases promise to yield more readily to treatment by radium and others to the X-rays; (2) a disease that has attacked different parts of the body of a given patient by radium and in others by the X-rays. (3) It is quite possible that in some cases the two remedies used together on the same area, and at the same sitting, may accomplish better results than either alone.

Pneumonia: In the *Medical Review of Reviews* (quoted from the *British Medical Journal*), D. B. Lees considers it advisable to begin the use of heart tonics in pneumonia on about the third or fourth day of the disease, and the one chosen, if given at all, should be used somewhat freely. Of these drugs strychnin is probably the most useful, and should be given hypodermically. Atropin subcutaneously is also very serviceable in children, but not so useful for adults, as they suffer more than children from dry throats and other unpleasant effects of belladonna. Oxygen is certainly a valuable remedy, and ranks with strychnin in the treatment of pneumonia; but neither strychnin nor oxygen, nor both together, will often save life if the right auricle is not relieved. After a bleeding they are powerful remedies. Without removal of blood they often fail, and almost necessarily. Digitalis will not always reduce the frequency of the pulse in pneumonia, especially when the temperature is high. It is most likely to be of service when the fever is moderate, and the pulse still remains weak, and frequently after the relief of the right heart. Alcohol, though called a "stimulant" has not much title to be considered a cardiac tonic. It is essentially a vasomotor depressant, and as such may help the heart indirectly when the tension is high. It is possible that repeated small doses may be of service in pneumonia, but the large doses sometimes advised are likely to do more harm than good. To imagine that "brandy" can support the heart when the right side is becoming paralyzed from over-distension is absurd. In such a case the only satisfactory cardiac tonic is a venesection.

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EDITORIAL

Marcus A. Hanna

It is difficult to estimate at this time, even in a small measure, the loss which has fallen upon our country, State and City in the death of the late Hon. M. A. Hanna.

Rarely, indeed, does it fall to the lot of an individual to fill, at one and the same time, so large a place in the affairs of State and Nation, and to win and hold the respect, admiration and devotion of all classes of society, as was so generously and sincerely accorded to this man.

Beloved alike by rich and poor, he occupied a unique place in the hearts of the people, and won everywhere from those who came to know him as a man, as well to thousands who knew him through his works, a genuine and loyal affection. It is interesting to recall at this time that Senator Hanna was the son of a physician, who for a decade and more, until disabled by accident, did a large and splendid work in medicine in Ohio in the early years of the last century. But not in this connection alone was Mr.

Hanna in touch with the great body of professional men, though we may well take pride in this fact of his birth and early close affiliation with medicine. Throughout his unusually successful career he has had at heart the best interests of the profession and has given largely to our hospitals and charitable organizations. His life and work are too well known to need comment from us, but we could not forbear adding our meager word of praise for the life which has been sacrificed all too soon, and which comes as a personal loss to a larger number of single individuals than has ever before been the reward of any single life whose public career has numbered so short a term of years.

Announcement

We regret to announce the withdrawal of Dr P. Maxwell Foshay from the editorial staff of the JOURNAL. For the past two years, dating from the amalgamation of the two medical journals then existing in Cleveland, Dr Foshay has had the active editorial control and general supervision in his charge, and has given its affairs a most unselfish and unflagging devotion.

At a special meeting of the stockholders, held February 17, last, made necessary by Dr Foshay's resignation, the following Board of Directors was elected: E. P. Carter, G. W. Crile, C. A. Hamann, J. F. Hobson, C. B. Parker, Hunter Robb, M. Rosenwasser, F. C. Taylor and H. S. Upson. At a subsequent meeting of the Directors an Executive Committee was chosen consisting of C. A. Hamann, J. F. Hobson, and Henry S. Upson, which shall have general oversight of the business affairs of the JOURNAL. Dr Edward Perkins Carter, who has been actively connected with the present JOURNAL from its foundation, was chosen Editor and General Manager to succeed Dr Foshay.

It is the purpose of the present management to continue along the lines already laid down, and it will be our aim to make the CLEVELAND MEDICAL JOURNAL fill the place in Cleveland and its vicinity that is occupied by similar journals published throughout the larger cities of the country.

Above all, it will be our endeavor to make the policy of the JOURNAL essentially constructive, and we trust that the approval which has been won in the past may be merited in even a larger measure in the future.

Radium as a Therapeutic Agent

The attention of the medical world is at present directed to the therapeutic experiments with radium, and so far the results lead us to hope that it will prove of great value in the treatment of certain skin diseases and malignant conditions. As in the case of the Röntgen rays, it is still too soon to pronounce authoritatively upon the permanency of the cure in malignant cases. Already many instances are recorded in which the use of radium has effected complete disappearance of carcinomatous growths, especially superficial epitheliomata. Similar results have been obtained in such cases by the Röntgen rays, but in a certain number of these cases the growths have recurred often with renewed virulence. Each of these two agents has certain advantages; as radium does not give such good differentiation of the tissues as can be obtained by the X-rays, it is of little value in taking radiographs or in making examinations with the fluorescent screen; but, on the other hand, radium is far more convenient, it can be easily transported, and can be readily applied in positions difficult of access with the X-rays. Its action can be readily controlled as the radioactivity seems constant in a given sample, although different specimens of its salts may vary greatly in strength, dependant probably upon the percentage of the metal present. It is not so convenient as the X-rays when large surfaces require treatment, but this objection may be overcome by the fact that the emanations from radium salts which will pass through the air, but not through glass, are taken up by rubber and other articles. These absorbed rays are given off slowly from the articles and apparently have the same effect as those directly derived from the radium salts. Three different varieties of rays given off by radium are described, and have been called the Alpha, Beta and Gamma rays respectively. Williams (*Medical News*, February 6, 1904) gives their physical properties and certain experiments he has been making with them. His clinical results with the Beta rays have been very good, and he is now trying the effect of the Gamma rays upon deep-seated growths. They are the fewest in number, but are deeply penetrating, while the Beta rays are more numerous, but act very superficially and are probably instrumental in causing the burns that have been recorded. The action of the Gamma rays alone can be obtained by interposing an aluminum screen which intercepts the Beta rays, but allows the Gamma rays to pass through if the screen be not too thick. The X-rays and radium will probably each have its own sphere of

usefulness as therapeutic agents; sometimes one will be most useful while again the other will be required. The final status of these two agents can be determined only by time, but we have every reason to be encouraged by the data at present available.

The Typhoid Situation

As we go to press, the typhoid situation in Cleveland threatens to become serious, and we may well wonder if we are to share the notoriety so recently attained by a sister city of this State.

We are confident that measures will be taken promptly to deal with the present outbreak, and it is to be hoped that the very necessary and radical improvement in our water-supply system may be ultimately brought about. It is hard to believe that a serious outbreak of typhoid in our midst is perhaps the most effectual argument that can be presented to the people of our city for the urgent necessity of a suitable filtration system; and yet, if in this way the desired improvements can be accomplished, who shall say that this outbreak has been in vain? For months past we have urged the imperative necessity for the installation of proper sand filters, and we do not believe that even now Cleveland will lag behind a host of less wealthy and smaller communities in making this vital improvement. Until we have a properly equipped filtration plant, let us continue to caution the public against drinking *any* water that has not been thoroughly boiled.

Normal Vision versus Normal Eye

The opinion is common among the laity that if a person sees well his eyes are all right, and not a few physicians in general practice seem to have the same idea. Many a doctor has a chart in his office, and will, when a patient complains of symptoms which might be referable to the eyes, test the vision. In this manner he detects many defective eyes, but when he finds normal vision and concludes therefore that the eyes are normal, he very often makes a grave mistake. Normal vision does exclude myopia and myopic astigmatism, except in very small amount, but a very considerable degree of hyperopia or hyperopic astigmatism, or both, may coexist with normal vision. Of course testing the vision gives no information concerning the extraocular muscles which may not be properly balanced, but we wish more particularly here to impress the fact that normal vision does not by any means indicate normal eyes as regards their refractive condition.

In hyperopia or astigmatism it is frequently not the eye with great defects that causes the most suffering; certainly they are not the eyes that are most apt to produce obscure reflex disturbances. Persons with these high errors cannot see well, and consequently do not make the attempt, or will at least endeavor to save the eyes as much as possible. The patient with a moderate error, however, sees very well at distance and in reading and consequently he continues using the eyes hard though he is constantly and perhaps unconsciously subjecting them to some strain all the time. It is not the great exertion of short duration but the moderate strain kept up constantly that is apt to produce the more serious reflex disturbance. The former may cause direct pain or discomfort that is easily referable to the eyes, but the latter may produce symptoms so remote from the eyes and so insidious that the true cause will escape detection at least for a long time. Only thorough examination will reveal these cases and often only a careful test with the eyes under the influence of a mydriatic.

Herein is one of the evil influences of the optician's work often seen. Because glasses derived from such a source do not afford any relief, the sufferer will conclude that the eyes are not the cause of the discomfort and will continue to suffer and take drugs, while a correct measurement of his refraction would have afforded complete relief. The writer has seen not a few patients who have a hyperopic astigmatism wearing concave cylinders given them by opticians. The glasses improve the vision but increase the strain and discomfort. Just as in an unaided eye, normal vision does not mean a normal or emmetropic eye, so the glass which improves the defective vision or even makes it normal is not necessarily for that reason correct. Everybody recognizes that an operation upon the eye requires skill, but comparatively few seem to appreciate the skill, the time, and the patience required in accurately measuring the refraction of a pair of eyes, or the judgment necessary in ordering glasses from those measurements.

Antistreptococcus Toxin

Among the work being done in the direction of preventive medicine a great deal of attention is now given to attempts to produce a greater variety of antitoxins against the more frequent infections. In the case of diseases caused by bacteria which produce soluble toxins as does diphtheria, the task is less complex, as the toxin can be obtained in sufficient quantities for experimentation without much difficulty, but in perhaps the majority of

organisms the toxin is apparently contained in the bodies of the bacteria and must be extracted before it becomes available. The process is a very difficult one and involves the use of cold as low as the temperature of liquid air, besides other technical problems of great complexity. Recently Macfadyen and Rowland, working in the Lister Institute of Preventive Medicine in London, have succeeded in extracting toxins from several bacteria, notably streptococci and staphylococci. Previous experiments in the line of immunity against these organisms, which play so great a part in cases coming to the surgeon, have dealt with actual cultures, or with the fluid filtered from such cultures and the results have been unsatisfactory. Whether the use of the toxin extracted by these methods will be of great value is uncertain, and no details of attempts at immunity are noted in this preliminary report, but it is a definite step forward, and the work of these observers and others working along the same lines may lead to material advance in the treatment of infections with the pyogenic cocci.

Correspondence

New York City, Jan. 30, 1904.

To the Editor: A concern styling itself the A. S. Valentine Chemical Company is advertising a preparation in the form of a capsule for which it claims scientific and wonderful value in the treatment of gonorrhea, its complications and sequelæ. Investigation shows that the A. S. Valentine Chemical Company is a corporation formed under the laws of the State of New Jersey, and that its incorporators are A. F. Evans, Frank L. Shelton and Nannie L. Shouse, all residents of Kansas City, Mo. This company has a small office at a pretentious address in New York City, which address it uses in its advertisements. The capsule they sell is a gelatin-coated thick fluid bearing the name "Benzol-Capsule Valentine." The contents of the capsule have been represented as "distilled and encapsulated by Valentine's special process."

As is admitted by the person in charge of the office, who is one of the directors, no person by the name of Valentine has ever been connected with the A. S. Valentine Chemical Company, nor has any person with this surname given it his or her consent to the use of this name.

In order to protect the profession and myself I call attention to the following facts:

1. That I have, in all my writings on gonorrhea, its complications and sequelæ, emphatically expressed my conviction that

no drug or combination of drugs administered internally can be a specific in a treatment of these diseases.

2. That no drug or combination of drugs given by the mouth can destroy gonococci.

3. That I do not know the contents of the capsules sold by these people and that I certainly do not recommend them or any other secret preparation.

4. That neither I, nor any relative, nor any acquaintance of mine is in any manner connected with the A. S. Valentine Chemical Company.

5. That on January 7, 1904, through my legal adviser, Henry C. Quinby, of this city, I formally requested the A. S. Valentine Chemical Company to desist from the use of the name Valentine, and on their refusal I caused a petition for an injunction against their so doing to be prepared for filing in the Circuit Court of the United States.

On January 20 the counselor of the so-called Valentine Company had an interview with my legal adviser, Mr. Quinby, which resulted in the former unequivocally advising his clients to cease using the word Valentine in any manner.

I will thank any of my colleagues to inform me of any violation of this promise, so that I may, for the sake of the public, the profession, and my own sake, prosecute as vigorously as the best possible counsel and any sum of money can.

FERD. C. VALENTINE.

TREASURY DEPARTMENT,
BUREAU OF PUBLIC HEALTH AND MARINE HOSPITAL SERVICE,
Washington, D. C., February 16, 1904.

A board of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B Street, S. E., Washington, D. C., Monday, April 4, 1904, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: 1, Physical. 2, Oral. 3, Written. 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a

short autobiography of the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco.

After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade.

Assistant surgeons receive sixteen hundred dollars; passed assistant surgeons, two thousand dollars; and surgeons, twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty, and fifty dollars a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the board of examiners, address

SURGEON GENERAL,
Public Health and Marine Hospital Service,
Washington, D. C.

Recent Additions to the Cleveland Medical Library

By purchase: Organic Nervous Diseases, by Allen M. Starr.

By donation: Dr C. A. Hamann, Journal of Medical Research, Vol. X, No. 3; G. H. Weaver, Transactions Chicago Pathological Society, Nos. 1, 2; Mrs F. E. Cudell, portrait of the late Dr A. Cudell; New York Academy of Medicine, Transactions of the Academy, 1896-1901, Semi-Centennial Celebration; Dr A. R. Baker, 41 bound volumes; Dr J. P. Sawyer, Transactions of the Pathological Society, of London, England, Vols. 4 to 42 inclusive; by exchange with the University of Michigan, Ann Arbor, 47 volumes.

Book Reviews

A Compend of Pathology, General and Special. A Student's Manual in One Volume. By A. E. Thayer, M. D., Professor of Pathology, University of Texas. Second Edition. Containing 131 Illustrations. P. Blakiston's Son and Co., Philadelphia, 1903.

The present edition is a presentation of the two volumes on the same subject issued the previous year, with the addition of a chapter on the nervous system. The book is of convenient form and neatly gotten up. There is a chapter on the technic of postmortem examinations, and another on tables and statistics, both of which are of value, especially to the student. The plates are all borrowed from various authors, due credit being given, and are, for the most part, not very well reproduced. The typography is pleasant, and the form and consistency of the book is convenient.

Practical Medicine Series of Year Books, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly Under the General Editorial Charge of Gustavus P. Head, M. D. Volume III. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, M. D., Albert H. Andrews, M. D., Gustavus P. Head, M. D. December, 1903. Chicago. The Year Book Publishers, 40 Dearborn Street.

This is the third volume upon the eye, ear, nose and throat which has appeared in this Practical Medicine Series, and, like the others, can be commended as a good review of the work of the preceding years in these special lines. The original sources of all the articles are given for those who may wish to refer to them, and some few comments are added throughout the book by the editors. Dr Casey A. Wood, as heretofore, edits the portion upon the eye, and Dr Albert H. Andrews the section devoted to the ear, but Dr Gustavus P. Head takes the place of Dr Harding in presenting the work upon the nose and throat. Numerous illustrations have been inserted in the section upon the eye, and nose and throat. A complete index of subjects, and one also of authors completes the volume. While the series is intended principally for the general practitioner, it is of value also to the specialist.

A Thesaurus of Medical Words and Phrases, by Wilfred M. Barton, M. D., and Walter A. Wells, M. D. Philadelphia, New York, London. W. B. Saunders & Company, 1903.

This volume, the first of its kind that we know of, represents an immense amount of labor, supplying in the field of medical literature the place occupied by Roget's Thesaurus and similar works in general literature.

So far as we have been able to determine, it constitutes a very complete, if not exhaustive, record of medical terms, with some of which, however, we are not quite clear as to their

exact etymologic derivation. We notice strangely enough the omission of the word "heuristic" which is apparently coming into quite prominent usage. The further omission of a whole host of words which have lately appeared in connection with the work done upon immunity and in the experimental work with the various venoms is to be regretted.

It is a work, however, which must fill a very useful and necessary place, appealing especially to those who do any medical writing, as well as to those who do much intelligent medical reading.

A Text-book on the Practice of Medicine. Designed for the Use of Students, by James Magoffin French, M. D., Lecturer on the Theory and Practice of Medicine, Medical College of Ohio; Attending Physician St. Mary's Hospital, Etc. Illustrated by 10 full-page plates and 50 wood engravings. Eight octavo, 750 pages. New York, William Wood & Company, 1903.

No claim for originality is made in behalf of this book. It is, as the author says, a compilation of the accepted facts of medical practice such as are found in many other treatises. Case reports and all personal experience have been eliminated, and for the medical student this may be an advantage. Part I consists of an introduction to the general principles underlying the practice of medicine. The various pathologic processes and the essential facts of bacteriology are also considered. The chief methods of clinical examination are briefly described in Part III. There is no doubt that as a text-book it will prove quite satisfactory, but with so many good books already upon the market it is hard to see the special need for this work.

Modern Surgery: General and Operative. By John Chalmers Da Costa, M. D., Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia. Fourth Edition, Greatly Enlarged and Entirely Reset. Handsome octavo volume of 1099 pages, with over 700 illustrations, some in colors. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Cloth, \$5.00 net; Sheep or Half Morocco, \$6.00 net.

In the succeeding editions of this surgery there has been marked and steady improvement. The present edition, the fourth, is certainly up-to-date in every respect. Especially is this true of the marginal references to the monographs upon special subjects, when space will not permit a very full discussion in the text. The opening chapter deals with bacteriology and under this head are considered Ehrlich's theory of immunity and the question of protective and preventative inoculation. Antisepsis and asepsis are concisely discussed, and some good practical points are given for the preparation of suture material, especially catgut. Fractures receive a good deal of attention, as should be the case, owing to their frequency. Intestinal surgery is fully described, and the

numerous illustrations are a great aid in explaining the technic of the various operations. The author is very guarded in his statements as to the curative effect of the Roentgen rays in malignant cases, but he thinks they are at least useful as palliative treatment. The volume is of convenient size, and the typographic work and illustrations are very satisfactory.

The Treatment of Fractures, with Notes Upon a Few Common Dislocations, by Chas. L. Scudder, M. D., Surgeon to the Massachusetts General Hospital. Fourth Edition, Thoroughly Revised, Enlarged and Reset. Octavo volume of 534 pages, with nearly 700 original illustrations. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Polished Buckram, \$5.00 net; Sheep or Half Morocco, \$6.00 net.

The popularity of this work is shown by its having run through three editions in as many years. The last edition has already been reviewed in these pages and certain additions have been made to it which, while not materially increasing the size of the present edition, render it more useful. One of these additions is a short chapter on the principal dislocations; these are briefly described and their treatment is given. The advantage of having this chapter embodied in this book is obvious when one considers the difficulties in diagnosis between certain fractures and dislocations. The numerous illustrations which form one of the leading features of the book have been improved, and additions have been made to their number. The work is very attractively gotten up and is of convenient size.

A Non-Surgical Treatise on Diseases of the Prostate and Adnexa, by George Whitfield Overall, A. B., M. D., Formerly Professor of Physiology in the Memphis Hospital Medical College. 12mo. volume of 207 pages. Chicago: Marsh & Grant Co.

This book treats almost entirely of the electric treatment of prostatic diseases. The author claims most marvellous virtues for this method, although at the same time he says that the greatest discrimination is required in its use. Stress is laid on the connection between nervous and prostatic diseases. Melancholia, melancholic mania, and insomnia may be caused by the prostatic lesions and cured by proper local treatment of the prostate.

Bottinis' operation is severely criticised. He says "most of the cases which have come under my notice have been complete failures." He advises searing the prostate with a flat cautery two or three times at intervals of 10 days, and then employing cataphoresis. Such treatment requires about one year.

The illustrations are poorly drawn and inaccurate. The opinions advanced, and the use of the "electrolytic, cataphoric and dynamic properties of electricity" which run riot through the book, will hardly be accepted by the majority of the profession.

The Office Treatment of Rectal Diseases. Explained and Simplified. Being an exposition of the treatment of all those diseases, both Medical and Surgical, of the Rectum, Anus, and Sigmoid Flexure, the cure of which may be accomplished without surgical anesthesia. By Rufus D. Mason, M. D., Omaha, Nebraska, Professor of Rectal and Pelvic Surgery in the John A. Creighton Medical College, Surgeon to St. Joseph Hospital, etc. Illustrated. Second edition. 12mo. 128 pages. The Review Press. Lincoln, Nebraska. 1902.

This excellent little book is devoted to such simpler methods of treating rectal diseases as may be carried out at the physician's office.

Etiology, pathology, etc., as well as major operations requiring general anesthesia, are omitted. Medicinal treatment and minor operations under local anesthesia are fully and clearly explained. The chapter on hemorrhoids is excellent, and the description of their treatment is full. A chapter is added on rectal examination for life insurance, and also a chapter on local anesthesia.

The book contains many valuable hints, and presents to the general practitioner simple methods of treatment which the larger works for specialists often omit.

Medical News

R. Ford, of Greenville, has removed to Dayton.

F. S. McGee, of Belpre, has removed to Marietta.

M. J. Skill, of Port Clinton, has removed to Ashtabula.

G. J. Martz, of Palestine, has removed to Hollandsburg.

G. W. Ryall, of Wooster, has returned from his Eastern trip.

Henry S. Upson, of this city, has returned from a trip in the South.

John R. Pipes, of Avon, spent a few weeks in New York City recently.

J. J. Kinney, of Wooster, has returned from his trip to Chicago.

F. S. Haggart, formerly of Sebring, has removed to Los Angeles, Cal.

The Columbiana County Medical Society met at Lisbon on February 10.

James L. Watson, of Toledo, has just returned from an extended trip to Jamaica.

The Crawford County Medical Society met at Bucyrus and discussed topics of interest.

W. E. Reid, of Kent, has sold his practice to W. W. Hall, and will remove to Denver.

The Ashtabula County Medical Society held its regular meeting on February 3 at Ashtabula.

Ernest Scott, the newly appointed city bacteriologist of Columbus, entered upon his duties on February 5.

J. R. McCleary, of Marietta, has just returned from his trip through California, Texas, and other western States.

Guy Yost, of Zanesville, has returned from Philadelphia, where he has spent some time doing postgraduate work.

Nathan Rosewater has been appointed Assistant to the Chair of Medicine in the Cleveland College of Physicians and Surgeons.

The members of the Clark County Medical Society met at Springfield on February 2. Isaac Kay read a paper entitled "Epilepsy."

It is alleged that the new water works plant at Elyria will not be allowed to start until an expert bacteriologist has been employed to take care of it.

The Ophthalmological and Otolaryngological Section of the Academy of Medicine of Cleveland held a meeting at the Library Building on January 20, at which C. C. Stuart read a paper on "Diseases of the Eye," and S. H. Large read a paper on "Ethyl Chlorid as a General Anesthetic."

The attention of the medical colleges of the State of Ohio is hereby called to the following resolution which was adopted by the State Board of Medical Registration and Examination at its regular meeting on January 5, 1904. Resolution: "That after September 1, 1904, advanced standing shall not be allowed on the regular four-year medical course to graduates in pharmacy."

The Lake County Medical Society was organized on February 6. Thomas Charles Martin, the Councilor for that district, made a short address on "Organization." The officers are as follows: E. B. Root, President; H. E. York, Vicepresident; T. M. Moore, of Willoughby, Secretary; and H. N. Amidon, of Painesville, Treasurer. The next meeting of the Society will be held at Painesville, on March 7.

The Canton Medical Society met on February 5, at which the following program was rendered: "Retrodeviation of Uterus and Treatment," H. M. Schuffell; "Paramyoclonus Multiplex," by T. H. Shorb; "Hysterical Aphasia," by L. D. Stoner; "Two Cases of Rheumatism in Children," by A. L. Riser; "Dermographia—Eczema," by C. S. Culp. The next meeting of the Society will be held in April. D. N. Kinsman, of Columbus, will address the meeting.

The thirty-fourth annual meeting of the Union Medical Association of Northeastern Ohio was held at Akron on February 8. About 60 physicians were in attendance. The election of officers resulted as follows: Edward Lauder, of Cleveland, President; C. F. Reed, of Akron, First Vicepresident; Carl A. Hamann, of Cleveland, Second Vicepresident; J. H. Seiler, of Akron, Recording Secretary; C. W. Millikin, of Akron, Corresponding Secretary; H. H. Jacobs, of Akron, Treasurer. During the past year five members of the Association have died and 15 new members have been admitted. C. E. Norris, of Akron, read a paper on "Pathology." Carl A. Hamann, of Cleveland, presented a paper on "The Surgical Complications and Sequels of Typhoid Fever." The program for the next meeting, which will be held at Massillon on the second Tuesday of May, will be as follows: Lectures, J. F. Hobson, Cleveland, and H. H. Jacobs, of Akron; Essays, M. Rosenwasser, of Cleveland, and T. J. Reed, of Massillon. Discussion, James Fraunfelder, of Canton. Reports of Cases, G. T. Rankin, Akron; H. H. Drysdale, Cleveland; Katherine Burns, Canton; E. M. Weaver, Akron; N. B. Dawson, Sterling, and W. E. Shackelton, Cleveland. At this meeting, Dr Wilgiz, of Akron, a native of Germany, and a retired physician, was elected an honorary member.

A CORRECTION

In the February issue of the JOURNAL P. C. Tait is reported to be the Recording Secretary of the Toledo and Lorain County Medical Society. The Recording Secretary is Charles P. Wagar.

Deaths

J. T. Mills died at his home in Columbus on February 1.

W. W. Firestone, of Wooster, aged 62, died on January 28. Death resulted from an operation for gall-stones.

C. W. Newton, formerly of Toledo, died in Phoenix, Arizona, on February 5.

Charles E. Dodd, aged 44 years, died at his home in Cincinnati on February 8. Death was due to apoplexy.

Edward Howard Moore, aged 28 years, died at his home in Columbus, on February 6, the cause being spinal meningitis.

C. W. Eddy, aged 27 years, died at his home in St. Marys, death resulting from pneumonia.

The Cleveland Medical Journal

VOL III

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No 4

Deaf-Mutes

REPORT ON EXAMINATION OF
PUPILS OF THE CLEVELAND SCHOOL FOR THE DEAF

BY ALBERT RUFUS BAKER, M. D., CLEVELAND

*"To instruct the deaf no art could reach,
No care improve them, and no method teach."*

This couplet of the old Roman poet expresses the attitude of the ancients toward the deaf and dumb. They did not appreciate the connection between deafness and being unable to speak, but supposed that the absence of speech was due to the lack of some mental quality, and that they were really dumb. Accordingly the Spartans killed them, and the Romans denied them all civil rights. Aristotle claimed that they had no mental faculties and were incapable of being taught, and St. Augustine condemned them to eternal damnation. Alexander, a medical author of the third century, contradicted the teachings of Aristotle, and claimed that they were capable of some mental development. If we exclude the miracles as related in the New Testament, the first well-recorded case in which the deaf and dumb were taught to speak was in the eighth century, when St. John taught a youth to enunciate the vowels, and then to speak sentences, so that he was able to keep up a conversation with anyone.

Dr Jerome Cardan, who was born in Pavia, in 1501, first established the physiologic basis of the relation between hearing and speaking, and during the following century numerous publications appeared and great progress was made in the education of deaf-mutes. Schools were established in Spain, Italy and France.

Read before the Ophthalmological and Oto-Laryngoological Section of the Cleveland Academy of Medicine, February 26, 1904

So far as I have been able to learn, the pupils were taught to read the lips and use their vocal cords as hearing people do.

Henry Baker, a son-in-law of DeFoe, who was born in 1698 and died in 1775, kept a private school for deaf mutes for many years in London, in which the oral system was taught. Like several institutions in Germany the method of teaching was secret. However, Baker, after his death, left four volumes of lessons in which the method of teaching was made known.

Heinicke permanently established the oral method in Germany, and established a school at Leipsic in 1777, which may be considered the parent of all the German schools. Heinicke made some valuable contributions to the literature of the deaf and dumb, but, like his English compeers, kept the method of teaching secret.

About the same time Del'Epée founded a school in France which grew to large proportions. The schools being large and the instructors few, it became necessary to develop some easier and quicker method of teaching, and the sign and manual method of talking with the fingers became highly developed. The French were strictly ethical, they had no secrets, and they taught their method of instruction freely to all comers. At this early period great rivalry sprang up between the French and German teachers, and owing to the ethical manner in which the subject was taught in the French schools it rapidly became popular and gradually extended to other countries. So that when the young theologian, Thos. Gallaudet, in the early part of the last century, went to England to study Deaf-Mutism, he first consulted Dr Watson, who had a school for the deaf in London, and was received rather coolly, the doctor refusing to communicate to him his method of teaching the deaf and dumb to speak. Accordingly Gallaudet soon became disgusted and went to France, where he was kindly received, and was taught the sign and manual method of teaching. He returned to America, bringing with him a deaf and dumb man by the name of Clerc, and they founded deaf and dumb schools in this country in which the sign and manual method was taught exclusively.

This imperfect sketch of the history of teaching the deaf and dumb will serve to show how it came about that practically all the deaf and dumb in this country were taught the sign and manual method to the exclusion of the oral method.

It was when the Germans became somewhat more enlightened and revealed their methods of teaching, and it became fashionable in this country to imitate all things German, that the oral method

was introduced into some of our schools, and thus came about the rival systems of education in our country. We have first the oral, or German system so-called, in which the pupil is taught to read the lips and speak as hearing people do, so that he can communicate with anyone; and second, the sign and manual system, in which the deaf and dumb are taught to communicate by the use of conventional signs and the manual alphabet, or finger spelling. They are unable to communicate with hearing people except by writing.

We also have what is called the combined system, which is supposed to elect the best of both the others, and may mean much or little. There is probably no one who has given this matter careful thought, who will not grant that it is desirable, if possible, to teach all of these people to speak so that they can associate with hearing people. If in an oral school with the superintendent and instructors thoroughly capable and honestly trying to do the best they can for the pupils, should some signs be introduced to meet the requirements of a few mentally incapable pupils, no great harm would result; but on the other hand, if in a school in which the sign and manual system had been taught ever since its foundation, in which the superintendent and instructors are all accustomed to talking on their fingers, a few classes in oral instruction should be organized, in deference to popular opinion, it is probable that little good would be accomplished.

I hope that I have made clear why it is that the sign and manual system became so thoroughly entrenched in this country, and why the oral system has been obliged to fight for every concession granted. It will thus be seen that almost every deaf-mute over 30 years of age has been taught the sign and manual method, and it is the only language known to most of them, and consequently they are very much prejudiced against any other method of teaching. Yet the oral method has made wonderful progress since 1867 when the first school was established in the United States in which the oral method was employed. At that time less than 1% of the deaf were taught by that method in this country. In 1901, 64% of the pupils in schools for the deaf were taught speech and speech-reading. And more than 56% of the schools used speech as the means of imparting instruction to the pupils learning to speak.*

Last year the school authorities requested me to examine the ears of the children at the Cleveland School for the Deaf, which

*Thirty-sixth Annual Report of the Clarke School for the Deaf.

is located at 1304 Willson Avenue. The following is a statement of what I found:

Number of pupils examined...	43	Measles	1
Congenital deafness	28	Adenoids	11
Acquired deafness	15	Large tonsils	10
Relatives deaf mutes.....	5	Deflected septum	4
Consanguineous marriage.....	4	Acute otitis media.....	1
Arrested development	2	Purulent otitis media	3
Cerebrospinal meningitis	6	Double uvula	1
Convulsions	5	Normal drum membrane.....	52
Scarlet fever	2	Pathologic drum membrane...	34
Mastoid disease	1		

There were doubtless many more cases of acquired deafness, because all the cases in which I could not get a definite history, or in which there were not present other marked evidences of acquired deafness, I put down as congenitally deaf. My friend, Dr Hobby, who examined over 500 deaf-mutes, found less than 15% congenitally deaf. On the other hand, English authors claim that more than 75% of deaf-mutes are congenitally so. The German statistics, which are probably more accurate, claim that about 50% are congenitally deaf. Cases of congenital deafness are very frequently hereditary, and I have no doubt that there were more cases of hereditary deafness than these statistics would indicate, as these patients are prone to deny deaf relatives, as they are consanguineous marriages. One of the strongest arguments against the sign and manual method of teaching deaf-mutes in separate schools is the tendency for them to intermarry among themselves, and this tendency if allowed to continue, according to Dr Graham Bell, is going to produce a race of deaf-mutes. The danger, however, is not quite so serious as Dr Bell would have us believe. In the first place the acquired cases are not hereditary, and, secondly, the congenitally deaf are fortunately not very prolific. There is, however, great danger from consanguineous marriage, and the constant association of deaf-mutes among themselves to the exclusion of hearing people in churches, clubs and other social organizations is greatly to be regretted.

It will be noticed that I have classified two of the cases as "arrested development." These children, even though they could hear as well as you or I, could not talk. Such children should be kept out of a deaf school, as they cause great trouble for the teacher as well as for the other pupils. They should be sent to some such school as that for the feeble-minded in Columbus.

Before taking up the statistics as to the causes in acquired deafness, it might be well to consider some of the characteristics

of deaf and dumb children. In Dr James Kerr Love's book on Deaf-Mutism* I found some very interesting statistics as to the average weight, height, chest, head and other measurements, of deaf and dumb children as compared with hearing children of the same age and social conditions in other schools. It was found that in many respects they were about the same in height and weight, but for some reason their chest measurements were somewhat larger than the average hearing child's, but the most characteristic peculiarity was the size of the brain. The average head measurement of a seven-year-old child is nearly one inch less than that of a hearing child. This is a very suggestive observation. It shows that in the case of the deaf and dumb, the child's brain, on account of his not having so many sources of educational development, does not grow in proportion to the rest of his body, so that when the six-year-old deaf and dumb child is sent to school, he has about the same mental equipment as a two-year-old hearing child. Therefore, we cannot expect as much from these deaf children. It suggests itself to my mind that they ought to be sent to school earlier. If there are any cases in which kindergarten training might be of great value it would seem to be in these.

Deafness is a relative term. Some people are deaf to certain sounds while hearing others perfectly, just as some persons are blind to certain colors. I reported an interesting case some years since of the late Alfred Cowles, for many years editor of the *Cleveland Leader*, which was about as follows:

"It was not until Mr Cowles was 25 years of age that he became perfectly cognizant of his defect. Up to this time he treated all that he read about the songs of birds as nothing more or less than poetic fiction. To him birds were perfectly mute; and he was perfectly deaf to the shrillest and highest notes of the piano, fife, or other musical instruments. At length, after considerable pain, he was convinced that he labored under some physical defect of hearing. When put to the test in a room in which a large number of canary birds were singing very loudly, he declared he could not hear the slightest sound even when placed close to their cages. Moreover, it was found that all the sibilant sounds of the human voice were equally inaudible. The consequence was that he, like the deaf-mute, never used them in his conversation. Curiously enough, in all other respects his hearing was not only perfect, but somewhat acute."

A person may hear a watch tick very distinctly and yet be unable to hear ordinary conversation; on the other hand many

*I wish to acknowledge my great indebtedness to this book for much historic and statistic matter in the preparation of this paper. The work is an exceedingly valuable one, not only for the physician interested in this subject, but should be accessible to every teacher of deaf mute children.

deaf people cannot hear a watch tick and yet hear the human voice very readily and suffer little inconvenience from their deafness. Whether a child is a deaf-mute or not depends entirely upon his ability to hear ordinary conversation.

The number of absolutely deaf people is very small indeed. Dr Love examined 123 cases and found only nine that were totally deaf, that is, that could not hear anything at all—stone deaf; 81 could hear sounds such as the tuning fork or a small bell, and 33 of them could distinguish the human voice. Speaking just a little louder, or standing a little closer would have prevented some of these children being deaf-mutes. Sometimes a very little training in an oral deaf school will enable these children to enter the public schools and keep up in the classes with the hearing children, especially if they happen to come under an intelligent teacher.

Cerebrospinal meningitis, and other cerebrospinal diseases included under the general term of "convulsions," make up the largest number of acquired cases of deafness. Many of these cases are complicated with other nervous lesions, such as partial or complete atrophy of the optic nerve, and consequently they are sometimes among the more hopeless cases of deaf-mutes.

Cases following scarlet fever, measles, and other middle-ear diseases, while not so frequent, are occasionally complicated by serious sequels resulting in death, yet the cases of recovery often present the most hopeful prognosis. Many of them have a remnant of hearing which is of very great service in teaching them to speak. In some cases treatment will be of very great service, as in the case of a young lady, patient of mine, who now has charge of a department in one of our large drygoods stores. She could hear, and had learned to read a little, when between five and six years of age she had a severe attack of scarlet fever, became deaf, forgot how to speak, and was a deaf-mute when she was first brought to my office at about 11 years of age. After a year's treatment she was so greatly improved that she again learned to talk, entered school, and rapidly overtook children of her own age and completed her present year in the high school, at the end of which time she took up her present position. It is to be remembered that these cases are entirely different from cases of aphasia in which there is a lesion of the speech center, such as the result of a stroke or apoplexy. I have under observation at the present time a clergyman who had a hemorrhage in the brain two years ago; he was unconscious for several weeks. He finally regained his consciousness and is now learning to talk again, and is in very much the condition of Emerson (who suffered from the same

affliction several years before his death) as related in a recent magazine article, it became necessary for him to speak of an umbrella, but not being able to recall the word, said, "it was that thing which everybody borrows and nobody returns."

Another feature of these cases is the large number of adenoid growths, 11 cases, or 25%; enlarged tonsils, 10 cases, nearly as many, and four cases in which there was deflected septum causing complete obstruction of nasal respiration on one or both sides, making a total of over 50% needing local operative treatment. The necessity of removing adenoid growths, large tonsils, and restoring free nasal respiration in these cases is much greater than in hearing children, because these growths make it very difficult to teach these children to speak. A hearing child, even though he has enlarged tonsils, and may speak as though he has mush in his mouth, can be understood, and as he grows older, will correct some of his bad habits of speech. With the deaf-mute, however, any such interference with the free play of the nasopharyngeal muscles makes it almost impossible to teach him to speak intelligibly. The same remarks are equally applicable to children suffering with adenoid growths or deflected septum.

I found the examination of these children very easy. Indeed it was a pleasure to make a rhinoscopic examination. They have such complete control of the muscles of the throat that they would do anything that I requested of them, much better than hearing children, or even adults. I thought it would be a very easy matter to remove these large tonsils and adenoid growths, but I found that when I made suggestions for operative procedure I met with strong objections, not only from the parents, but from the children themselves. I must say, however, that I was nobly supported by the teachers of the school, much better than I have been under similar circumstances in hearing schools.

Altogether I removed one or both tonsils in five cases, and adenoid growths in five cases. I think some of my confrères have operated upon several others. There are still, however, a number of these children needing attention, and if any of you can persuade or force them to have these large tonsils and adenoids removed, you will be conferring not only an inestimable service to the children themselves, but you would do much to smooth the way of these teachers who have, at the very best, a most exacting task before them. I am not equal, even though inclined, to detail the amount of patience that is necessary to teach these children, to make even one vocal sound. A visit to the school and a personal examination of the methods used, and the amount

of training required and patience necessary to teach these little folks to speak, will amply repay you for time and trouble.

This is a question that not only concerns the individual, but the State. If deaf-mutes are educated in deaf and dumb schools, and taught to communicate with each other only on their fingers, and are unable to associate with hearing people, they will in consequence intermarry, and not only marry each other, but relatives as well, and consequently there will be an increase in the number of deaf and dumb children. This, to my mind, is one of the strongest arguments against the sign and manual method of teaching. They are cut off from intercourse with other people, and it is obligatory for the State to spend more money, if necessary, to teach these children so that they may become useful citizens, and not a segregated class associating with themselves, and with a tendency to increase. The advantages, however, are not only to the State, but to the individuals as well. The deaf and dumb person who cannot talk must be in a very sad condition indeed. I have had occasion to meet a great many of these people, and those who have been taught to talk and read the lips are certainly very much superior to the others in every way. They are much happier and much better citizens. It is true you will occasionally have a case cited by those who believe in the sign and manual method, that a child who is first taught in a sign school and is taken out and put into an oral school and there taught to read the lips, will, when sent back home, after leaving school, often forget how to talk and fall back on the old method of using signs. But this is not an argument; it simply proves that the child was started wrong. We all, as we grow older, return to those things which we learned first. The old man remembers what happened in childhood better than what occurred yesterday. It is a matter of education. I was taught to think in inches and feet and ounces and pounds, and notwithstanding all my later education and a constant writing of prescriptions for several years in the metric system, I continue to think in inches and ounces; and so it is with the deaf and dumb child that is first taught to use the sign and manual method. He simply falls back to that method which he was first taught. If I had a deaf-mute child I would be very careful to keep him from coming in contact with people who talk on their fingers. I would never want him to learn the sign and manual method; it would be detrimental to him in every way, and until the medical profession comes to realize this fully, slow headway will be made against the sign and manual method of teaching, which is so thoroughly entrenched in some of our large State institutions.

There is much to be said in favor of the day school such as we have in Cleveland, in which the children are taught to speak and read the lips at school, and associate with hearing children at home and on the streets. It will undoubtedly do much to break up the clannish habits these people have of associating together as a result of their faulty education.

Those of us who have read the remarkable book of Helen Keller, which is doubtless the most notable book of the year, and recall that she could neither see, hear, nor speak, may be led to expect too much from these children. But, as I intimated before, these deaf and dumb children are no better equipped mentally and physically than hearing children, and owing to their deafness have had so many avenues of information shut out from them that the child of six has about the same mental equipment as the two-year-old hearing child, so if these children, at the end of 10 or 15 years, are able to converse intelligibly with any one, have made fair progress in reading, writing and arithmetic, they have accomplished all that we should expect. We should not expect their voices to be very musical, and we should not expect them to read the lips of strangers with too great facility, but yet I have found that many of these children of 15 or 20 years of age are able to enter high-school with hearing children, and altogether are ready to take their place in the community in whatever position their mental or social status has fitted them.

Is a Marked Diminution in the Amount of Urea Excreted During Pregnancy an Indication of Threatening Puerperal Eclampsia?

BY F. S. CLARK, A. M., M. D., CLEVELAND

The determination of the cause of puerperal eclampsia is a problem that occupies the thoughts of many investigators today.

Many possible causes have been investigated, and different tests have been looked upon as reliable indications of danger, but the cause remains unknown, and the tests employed are not always to be depended upon. The test for albumin was long looked upon as of greatest value, but it has proved unreliable at times so that many have lost confidence in it. More recently an estimation of the quantity of urea excreted during pregnancy has been generally accepted as a sure indication of threatening eclampsia. In a paper read before this Society a year ago, on The Treatment of

Puerperal Eclampsia, the statement was made that an estimation of the excretion of solids was of special value, and if the total amount was found to be decreasing, as indicated by the quantity of urea excreted, prompt measures should be taken to increase them. This statement was based upon the opinions of many authorities, some of which are as follows:

Reynolds and Newell, in their "Practical Obstetrics," say that the amount of urea excreted in 24 hours must be estimated, and "any marked diminution in the total 24 hours' amount should be regarded as a sign of serious import and receive prompt attention." Grandin and Jarman, in their "Practical Obstetrics," say that diminution in the amount of urea, together with the ordinary symptoms of uremia, is of more value than the presence of albumin. Dr Charles Jewett, in his "Text-Book of Obstetrics," published in 1899, says that notable diminution of urea should always excite suspicion, and a marked falling off is usually of grave import. J. O. Polak, in the "*Centralblatt für Gynäkologie*," for October, 1902, says the most important preeclamptic signal is a diminution in the excretion of urea, a fall to 1.5% always being dangerous.

More recently, Dr S. Marx, in a discussion of a paper on "Toxemia of Pregnancy," is quoted in the *Journal of the American Medical Association*, for December, 1903, as saying that experience had taught him to think less and less of albuminuria, and more and more of the quantity of urea excreted as an index of danger. Edgar, in his "Practice of Obstetrics," speaking of the signs of approaching eclampsia, says a much better guide, as compared with albumin, is the quantity of urea excreted though it cannot always be depended upon, for there may be an abundance of urea and eclampsia still occur. Recently a few writers have been less positive in their endorsement of it as a valuable sign. Jewett, who was quoted above, said, in discussing the paper referred to on "Toxemia of Pregnancy," that the quantity of urea excreted was, in his opinion, a greatly over-rated danger-signal. Hirst, in the volume of his "Text-Book of Obstetrics," issued last year, and in an article in *American Medicine* last May, says that much stress has recently been laid upon the excretion of urea, but from tests he has made he does not consider it of value unless associated with other symptoms. Williams, in his recent text-book, also considers it of value when associated with other symptoms. The favorable termination of cases in which the excretion of urea was far below normal led me to doubt the value of this factor. It is the conclusion drawn from a study of some of these

cases that I wish to present. Many specimens of urine examined were furnished me by Dr H. J. Lee, from whom valuable suggestions were also received.

Before giving the results of these examinations, it will be well to recall a few facts regarding the excretion of urea in pregnancy. It is natural to suppose that there would be an increase in the amount of urea excreted, yet for some unknown reason there is a decrease. The average amount excreted in 24 hours in the nonpregnant state is 30 to 40 grams. According to the observations of Hirst and Williams, the average amount in pregnancy is 20 to 24 grams. This is in cases passing 50 to 60 ounces of urine in 24 hours and in cases in which the food and exercise taken is up to the average for such conditions. In my cases I not only found that the urea was less than the ordinary amount in many instances, but that in some there was a gradual diminution as pregnancy advanced. The tests were made by the Doremus method. Urine was examined from 38 cases with a total of 140 examinations. The time of examinations varied from as early as the end of the second month to the day of confinement. An effort was made, as a rule, to begin the examinations by the fifth or sixth month, making one examination a month up to the last month and then once a week. In suspicious cases, tests were made every two or three days. In several cases it was difficult to obtain urine for examination as frequently as desired, and in others we were not engaged to take charge of the confinement until near the end of pregnancy. The smallest number of tests made in any case was one, and the largest number was eleven.

Notes were made of the month of pregnancy, quantity of urine passed in 24 hours, specific gravity, presence of albumin, percentage, an estimated total quantity of urea, and the results of a microscopic examination. The microscopic examinations were made only when albumin was found, and in the doubtful cases. We are most interested in the urea tests, but the total quantity of urine passed and the results of the examinations to determine the presence of albumin will also be of interest. The largest amount of urine passed in 24 hours was 96 ounces and the smallest was 22 ounces, the average for 130 examinations being 48.10 ounces. The highest percentage of urea excreted was 2.5, and the lowest .2 of 1, the average being .99, which is low as compared with the supposed normal amount. The largest amount of urea excreted in 24 hours was 33.6 grams and the lowest was 2 grams, giving an average of 13.57 grams for 130 examinations. There were 10 cases in which I did not learn the amount of urine passed in 24 hours so that the total amount of urea could not be estimated.

In the further consideration of the tests, reference will be made only to the total amount of urea excreted in 24 hours, this percentage having the most significance only when taken in conjunction with the total quantity of urine passed in 24 hours.

In five of the 38 cases every examination showed less than 10 grams of urea, and in two other cases every test was below 10 grams except in one instance in which it was 10.5 grams, and another of 10.9 grams. In 18 cases in all, or a part of the series, the total amount of urea was below 10 grams. In 30 cases in all, or in a part of the tests, the total amount of urea was below 15 grams. There were 12 cases in which some of the examinations gave over 20 grams of urea, but four of these cases gave some results below 10 grams, and two cases between 10 and 15 grams. In six cases most of the examinations made showed normal amounts of urea, but in the balance the amount of urea was low. Albumin was found in considerable quantity in three cases.

In a case of eclampsia at seven and one-half months, which was seen in consultation, I obtained urine by catheterization. This (two ounces in amount) showed 1.6% of urea. The woman had been passing only 16 ounces of urine a day, and the total amount of urea for that amount would be approximately 7.68 grams, while for the two ounces it would be .98 grams. The albumin was 5/6 by volume. I was unable to make further examinations in this case.

Examination of the urine of the second case showed a large amount of albumin at the eighth month. A few days later an examination of a 24-hour specimen of urine showed 1.8% of urea. The total quantity of urine was not given so that the amount in grams cannot be estimated. The amount of albumin was much less. A week later another examination of the urine, amounting to 44 ounces for 24 hours, showed .9 of 1% of urea, just half of the preceding test, the total quantity being 11.8 grams. There was only a trace of albumin. The rapidly decreasing amount of urea should perhaps have indicated a threatening eclampsia, but a few days later she was delivered with no symptoms of the disease. In this case, as in some others, I did not obtain urine for repeated tests, the patient being under the care of another physician.

The first examination of the urine of the third case was made at the fourth month, showing 21 grams of urea in 47 ounces of urine. Ten other examinations were made as follows:

Second examination: 47 ounces of urine contained 11.2 grams of urea.

Third examination: 56 ounces of urine contained 18.5 grams of urea, and a trace of albumin.

Fourth examination: 57 ounces of urine contained 14.96 grams of urea, and a trace of albumin.

Fifth examination: 57 ounces of urine contained 27.4 grams of urea, and $1/3$ by volume of albumin.

At this point, the beginning of the ninth month, the patient suddenly developed every symptom of impending eclampsia, that is, headache, nausea, difficulty in seeing, some stupor, and swelling of face and hands. There had been swelling of the feet for some time.

Treatment was very vigorous, and the examination showed the following results:

Sixth examination: 55 ounces of urine, 14.8 grams of urea, $1/6$ volume of albumin.

Seventh examination: 64 ounces of urine, 11.4 grams of urea, $1/8$ volume of albumin.

Eighth examination: 57 ounces of urine, 14.9 grams of urea, $1/8$ volume of albumin.

Ninth examination: 60 ounces of urine, 13.2 grams of urea, $1/10$ volume of albumin.

Tenth examination: 36 ounces of urine, 10.2 grams of urea, $1/10$ volume of albumin.

Eleventh examination: 52 ounces of urine, 12.4 grams of urea, $1/10$ volume of albumin.

Other tests for albumin were made, of which I will make no mention. The microscope showed casts when the urine had $1/3$ volume of albumin, but these rapidly diminished.

The last examination was made the day before confinement, which was normal. It is interesting to note the difference in these results. When it seemed as if we might have convulsions at any time the excretion of urea was 27.4 grams. This decreased to as low as 10.2 grams and was 12 grams the day before confinement. Surely, according to the general opinion, we were in great danger at the time of confinement and yet the general symptoms were very much improved. It is true that she was on a very restricted diet and in bed part of the time, which would make some difference in the amount of urea excreted; but who can say, if we restricted the diet in our cases, how much of the decrease in excretion is due to restricted diet and how much to uremia?

With these three exceptions all cases were free from suspic-

ion of danger. All of the rest of the deliveries were normal, except four cases in which forceps were used.

At the risk of tiring you, let me give the figures of a few of the most marked cases which illustrate the way in which the amount of urea excreted may vary; the way in which, in many cases, it diminishes as the end of pregnancy approaches, and how it may remain low during the latter months of pregnancy, with no symptoms of danger appearing and with a normal labor.

In the following case, which first led me to doubt the value of these tests, I made the first examination at the beginning of the ninth month, making nine examinations between then and two days before labor. The amount of urine voided in 24 hours varied from two to three and three-quarter pints. Only once did it go below three pints. The amounts of urea in grams were as follows: 9.3, 6, 8, 9, 4.2, 5.5, 4.5, 3, 3. After the second examination diet and exercise were restricted.

The patient felt well during the whole time and rebelled against the diet and inactivity. Labor was difficult and terminated with forceps. Five days after labor, examination for urea showed 23.1 grams in three pints of urine. She had had a little meat once since labor, otherwise a light diet, her condition in this respect not varying much from what it was before labor. Of course the patient had taken no exercise.

In case 19, five tests were made during the last month of pregnancy. The 24 hours' urine varied from 34 to 46 ounces, the urea in grams being 3.8, 3, 2, 3.5, 7.7. No change was made in diet or manner of living. Labor was normal.

The next case was that of a vegetarian. During the early part of her pregnancy she was in poor health and took but little exercise. Later these conditions were about normal. Eight tests were made during the last four and one-half months of pregnancy. The 24 hours' urine varied from 32 to 64 ounces, the urea being as follows: 8.5, 5.7, 6.2, 9.7, 2, 3.8, 9.75, 10.5 grams. There was no special treatment, and labor was normal.

In another case three tests made during the last month resulted as follows: The urine passed in 24 hours was 48, 48, and 32 ounces respectively, and the urea in grams was 10, 8.6, and 6.75. Labor was normal.

In case 24, seven tests were made during the last three and a half months of pregnancy. The amounts of urine voided during 24 hours varied from 40 to 52 ounces, the amounts of urea being 8.4, 8.6, 9.3, 7.5, 6, 11.6, and 13.5 grams. There was no change in the patient's regular manner of living. It is interesting to note

that she took long walks. Labor was difficult with forceps delivery.

Case 38 shows the great variation sometimes seen in the excretion of urea. During six and one-half months nine tests were made. The patient, as a child, had a severe nephritis following scarlet fever. Several microscopic examinations showed a few granular and hyalin casts. Slight traces of albumin were found occasionally. She leads an active life. The urine voided varied from 32 to 56 ounces during the 24 hours. In one examination the amount was not given, so that I cannot give the total amount of urea excreted. In the other tests it was 17.2, 16.3, 20.1, 18.3, 6.7, 22.8, 17.2, and 12.2 grams. Labor was normal.

I have purposely chosen instances in which the large number of examinations show low excretions of urea and some specially interesting features. It is probably unnecessary to give others.

The conclusion I would draw from these results is that a diminution in the quantity of urea excreted during pregnancy does not signify that eclampsia is threatening. For this reason, if other conditions are normal, a systematic examination for urea is of no value and cannot always be depended upon, even in cases in which other conditions are abnormal.

It is true that such a small number of cases would give very inaccurate conclusions if we were trying to establish the positive value of examinations for urea, but it does not require a large number of cases to establish the negative value of this factor. When we consider the result of the pregnancies in which the amount of urea was so low, it seems absurd to put our patients on antieclamptic treatment when there is no other symptom than a decrease in the quantity of urea excreted, and we would find them very rebellious if we did.

If there are other symptoms suggestive of danger, it might be advisable to make frequent tests for urea, and if the quantity is rapidly decreasing, give such fact due consideration.

If these conclusions are correct the question naturally arises as to what can be depended upon as a warning of danger. Unfortunately there is no one sign that is pathognomonic.

Whitney and Clapp, in a recent publication, gave the results of their investigations regarding the significance of a decrease in the excretion of ammonia which may later show it to be the cause looked for, but much work must still be done along this line, as well as others, before the right cause and a sure test is found. Until such time the best results will be obtained by a close observation of all symptoms.

While albumin may be present without eclampsia occurring, and eclampsia may occur without albumin having been found, it appears today to be our best guide. If two different examinations are made of each specimen we are less likely to overlook the presence of albumin when it exists merely as a trace. It is quite possible that if some of the specimens in which we think there is no albumin were more thoroughly examined, we would find traces which would put us on our guard. This might explain some of the sudden cases of convulsions in cases in which we thought there was no albumin. If it is found only in traces then a microscopic examination should be made.

In addition to this, the patient should be instructed to make frequent estimations of the quantity of urine passed in 24 hours; she should be instructed in regard to drinking large quantities of water, keeping the bowels in the best of conditions, and be cautioned to notify her physician on the occurrence of headache, nausea, difficulty in seeing, or swelling of the hands or face or excessive swelling of the feet and ankles.

It is not difficult to impress the importance of these measures upon our patients when we are engaged to attend them, and if it is done such a variety of symptoms will but rarely fail to give us warning of impending danger. At such times, repeated tests might show a rapidly decreasing amount of urea excreted suggesting some antieclamptic treatment, but in such cases this line of treatment would be indicated anyway, so that but little, if any, good is gained by testing for urea even when other symptoms are present. The results of the tests above referred to do not seem to warrant systematic examinations for urea when such symptoms are absent.

Cause of the Infection of the Water-Supply of Butler, Pa.

BY MARTIN FRIEDRICH, M. D., CLEVELAND

The typhoid epidemic in Butler, Pa., following so soon after the outbreak at Plymouth, furnishes two classic examples from Pennsylvania of the contamination of the water-supply by typhoid germs which resulted in serious epidemics. The epidemic in Butler is just as striking a lesson as was the outbreak at Plymouth, and will be recorded in medical history as a striking and tragic illustration of gross carelessness. It is interesting that

the town of Butler, in spite of all its natural advantages, should have been overtaken by so disastrous a calamity.

The town is situated on a gentle elevation surrounded on all sides by high hills. The soil on which it is built is of gravel; the houses are not thickly set, there being plenty of space between them, and together with an uninterrupted slope in every direction free natural drainage is easily obtained and the place has all the appearances of a healthful locality. The borough proper numbers about 18,000 inhabitants. When I arrived in the city on December 5, every fifteenth inhabitant was ill with typhoid fever. Whole families were stricken, four or five cases in one household was not unusual; the Orphan Asylum, which harbored 84 children, had 25 cases. They converted the top floor of their building into a hospital, but even then there was not room enough to take care of all who were ill. The beds were crowded together and there were two patients in almost every bed.

The City Hospital contained 23 beds, which was all the hospital room available in Butler when the epidemic broke out, and at this time there were over 1200 typhoid cases alone in the town. The epidemic was then practically at its height, although the number of new cases had declined to an average of 10 in 24 hours as compared with an average of 50 during each 24 hours from November 10 to December 1. Not one of the cases had at this time fully recovered, some being then in the critical third week, and already there had been 30 deaths. It was with a feeling of relief that I turned my back upon the borough to inspect the watershed of the Connoquenessing Creek, from which the town of Butler received its water-supply, in order to determine, if possible, the source of infection of the drinking water, of which there could be no doubt. Springdale, really a part of Butler, just across the Connoquenessing Creek, which derived its water from artesian wells and used none of the city water, was practically free from typhoid fever. The few sporadic cases which had developed occurred in individuals who had worked in Butler and drank the city water.

The water-supply of Butler is in the hands of a private company. The city consumes 3,000,000 gallons daily. The company kept an impounded reservoir of one million and a half gallons capacity by constructing and maintaining a dam over the Connoquenessing Creek near Boydstown, about seven miles above Butler. From this reservoir the water was piped down to the city pumping-station, filtered through a mechanical steel filter, consisting of six units, then pumped into the city reservoir, whence

it was distributed through the city by gravitation. On August 28, 1903, during a cloud burst, the dam at Boydstown broke. It was practically all swept away. The company was then building a dam over Thorney Run in order to get a reservoir of a larger capacity (3,000,000 gallons), but the dam was not finished when the Boydstown dam gave way.

The city had to have water, so they were obliged to pump directly from the Connoquenessing at the pumping-station. All went well as long as they filtered the water, but during the latter part of October they stopped the filters in order to make some repairs. The superintendent of the water-works told me that this was during the last five days in October. When asked to give the date he said he could not as no record was kept of it. From other sources I learned that the filters were stopped for about 10 days. Be this as it may, the fact remains that during the last week of October the raw water of the creek was pumped directly into the city reservoir and hence distributed through the city, and that about November 10 the epidemic started with frightful suddenness.

Here again no record was kept. Although the laws of Pennsylvania demand reports of typhoid fever cases, not a single case was reported to the local Board of Health, nor did the local Board seem to care anything for reports. It was only when the State Board of Health took charge of the matter and instituted an investigation that the fact was brought to light, that during November, 1123 cases of typhoid fever had developed with 19 deaths, and that the epidemic proper started about November 10.

In company with Dr McKee, who was employed by the State Board of Health, and other officials, I drove up the hills twice, once as far as the Thorney Run dam, which is now finished, the other time to Greece City, and inquiries of the country store-keepers brought out the fact that typhoid fever has been epidemic for the last decade, and that in the water-shed of the Connoquenessing. Cases have occurred constantly. In 1901 there was quite an epidemic below Boydstown, three patients having died from it. In a thinly settled community, that is a fact well worth remembering. But cases had occurred in August and September of 1903. There had been four cases with one death near Greece City, about nine miles above Butler; two cases close to Thorney Run reservoir; others along the course of the Stoney Run, and as both Runs empty into the Connoquenessing, there were chances enough for typhoid germs to find their way into Butler's water-supply. Upon my return from my last trip up the hills I learned that it was not

necessary to go so far to find the source of infection of the water-supply. Last October a case of typhoid fever had occurred within sight of the pumping-station. The house was pointed out to me, and I went there the next day to investigate the case. I found in a lowly shanty, a mother with her two daughters. One of the daughters was still in bed, very emaciated, very feeble, and although without fever, was not yet able to sit up. The other, although up and around, still showed symptoms of having recently passed through a severe illness. The mother told me that one of her daughters had fallen ill on September 6, and the other on October 21; that the doctor, in the beginning, did not recognize the disease, but that he called both cases typhoid fever after the epidemic broke out in Butler. The two cases were undoubtedly typhoid fever according to the mother's description. The shanty stands near a little creek, within a stone's throw from where it empties into the Connoquenessing, near the pumping-station. I could not ascertain the name of this creek.

The closet was located at the furthest end of the lot, and it was just about as far to it as it was down to the creek, and I am inclined to believe that the mother washed and emptied the chambers into the creek. First, there was no water in the closet; secondly, the mother volunteered the information that she did not empty the stools into the creek; and also that the doctor had told her to use disinfectants, etc.; all that after having informed me that the doctor did not recognize the cases until the epidemic had broken out in Butler. While it cannot be denied that infection from further up was quite possible, in my mind, these two cases, especially the one which started on October 21, did the mischief. They were not 1,000 feet from the pumping-station, and during the latter part of October, when the last case was at its height, the water was not filtered.

Who is to blame? Of course everyone, the water company asserts. They did an imprudent act by stopping the filters during the time they had to pump directly from the creek. To do them justice, it must be said that they had no knowledge of the fact that typhoid fever is epidemic in the water-shed of the Connoquenessing. The doctors failed to report the cases, and it is a question in my mind whether the local Board or the State Board of Health insisted upon having them reported, which was clearly their duty. A word of warning might have avoided the whole calamity.

I went to Butler to see what could be learned from the epidemic. I found that the oft-taught lesson, namely, that raw

surface-water which passes through an inhabited country before it reaches the municipal reservoir is teeming with danger and liable to bring forth, at any moment, a dire calamity. The source of Butler's water-supply had become infected with typhoid germs, but the public health was safe just so long as the water was filtered. The authorities stopped the filters for five days and the epidemic followed immediately.

Who can bring a more forcible argument in favor of filtration? Another lesson was forcefully brought out, namely, that all cases of typhoid fever must be promptly reported, and that the Boards of Health must insist upon it, for they must keep informed upon the quality of the water furnished to the community in order to lay before the proper authorities the necessity of a filtration plant where one is needed, and to prevent the stopping of the filter, at an inauspicious moment, which ought to have been done in Butler, or to urge the superintendents of water-works to use more than ordinary precautions in time of danger. When after resumption of filtration and daily flushing of the pipes the epidemic did not subside fast enough, the water company of Butler sent for an expert on filtration and he found it necessary to increase the coagulant from three-fourths of a grain to a grain and one-third. He had to double the amount of alum in order to make the filter efficient, not only in clarification of the water but especially in bacterial depuration. These lessons were taught at the expense of vast sums of money, with indescribable mental and physical suffering, and with the loss of scores of human lives.

Specimen of Pseudarthrosis or False Joint of the Ulna

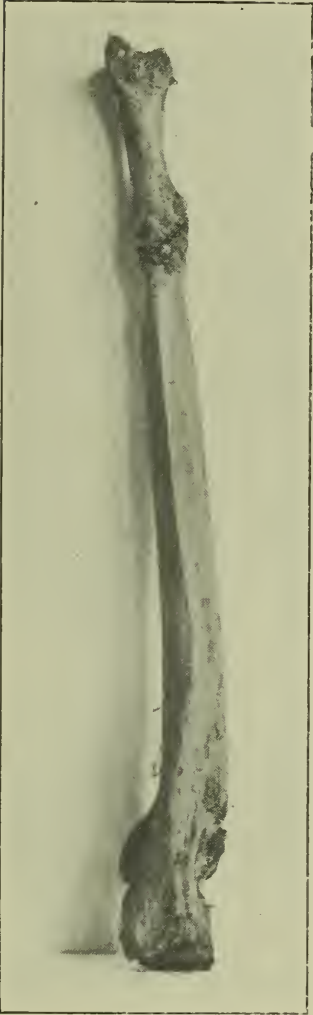
BY MYRON METZENBAUM, B. S., M. D., CLEVELAND

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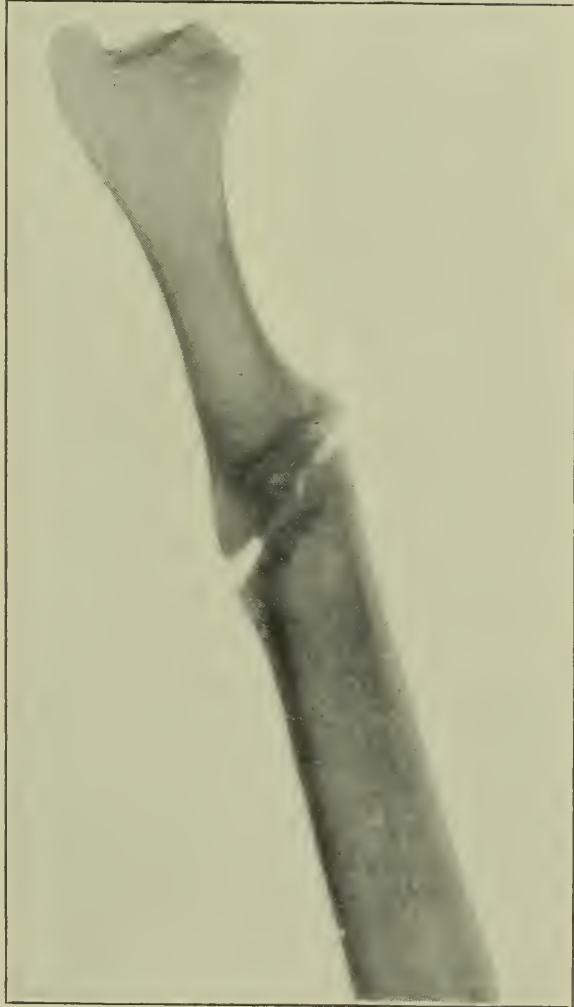
This specimen of ununited fracture of the ulna was obtained in December, 1903, from a subject in the dissecting-room of the Cleveland College of Physicians and Surgeons during a demonstration in anatomy.

The subject was a man over 60 years of age, who was fairly well nourished and quite well developed. There was present considerable tubercular involvement of both lungs. There was no evidence of syphilis or malignant disease. It was not even possible

SPECIMEN OF PSEUDARTHROSIS OR FALSE JOINT OF THE ULNA



Specimen of Pseudarthrosis or False Joint of Ulna, obtained from a subject in the dissecting-room of Cleveland College of Physicians and Surgeons. Subject, man aged 60. December, 1903.



Pseudarthrosis, showing compact tissue extending around the ends of the fragments closing off the medullary canal. Skiagraph.

to determine whether a marked arteriosclerosis was present, for the arteries had been injected. The heart was apparently normal.

No unusual motion of the forearm was noticed, owing to the stiffness of the subject, until the deep layer of the muscles was reached, at which point an unnatural motion of the lower portion of the ulna was observed.

The pronator quadratus muscle was dissected away, and underneath, at about the middle of this muscle, the ulna showed a fracture. There was no contusion or infiltration in this region. All the muscular attachments from the wrist to the elbow were removed, and a close examination of the radius was made, but there was not the slightest evidence that the radius had ever been fractured, or that there had been a dislocation of any of the bones comprising the wrist. This permits of the very reasonable inference that the fracture was probably caused by direct violence.

Examination of the bone shows that the ends are smooth, and that the extremities are expanded or enlarged, as are the ends of regular long bones. There are also small smooth tubercles on this expanded portion, and the two fragments are held together by a fibrous connecting substance, which does not contain any calcarious deposits, and which acts like a capsule, joining, and yet allowing of motion. This motion was greater when the specimen was fresh.

In the X-ray picture it can be seen that the cancellous tissue in both fragments does not extend to the ends, but that the ends are composed of as thick a layer of dense compact tissue as surrounds any other part of the bone; also that both ends are smooth and concave. All of these points suggest very strongly an effort on the part of nature to form a new joint, namely, a pseudarthrosis or false joint.

The failure of bony union at the time of fracture may have been due to the low vitality of the individual, to arteriosclerosis, or to a portion of the pronator quadratus muscle slipping between the fragments, or to the fact that the ulna alone was broken, that the radius acted as a splint, and that the fracture was underneath the pronator quadratus muscle, all of which limited the motion of the fragments, and may have led to the idea that there was no fracture. If no splints had been applied, it is possible that each time the pronator quadratus muscle acted, the tendency would have been to separate the ends of the bone.

These reasons in explanation of the fibrous union might be given as of equal importance in favor of the bony union. The

vitality of the individual could not have been very low, at least as a result of his tuberculosis, for the body was still quite well nourished. Arteriosclerosis does not seem to interfere with the union of bones. If the bones were not at rest, the callus should have been unusually large, for motion is one of the methods used to stimulate union in cases in which union seems to be retarded.

From the firm and snug attachment of the pronator quadratus muscle to the anterior surface of the bone, it seems quite improbable that the muscle could have been slipped between the fragments. In case it had been caught between the ends, the pain would have been considerable, and would probably have caused him to seek aid. Again, if the arm was not at rest, the muscle would probably have worked itself out; if the arm was at rest, the bone then should have healed.

I tried to fracture the radius and several other bones and cut off the end of this bone, but there are no evidences of a possible spontaneous fracture or even brittleness. The pronator quadratus muscle partly surrounds the ulna and radius, making an almost perfect cast around each bone, and so to speak, splints the two bones together, and this muscle alone should have been sufficient to have held the fragments in position until a union took place.

1220 Willson Avenue

Report of a Case of Belladonna Poisoning

BY J. J. THOMAS, M. D., CLEVELAND

The patient, E. J., aged two years and seven months, is a normally developed, active male child. The child was breast-fed until one year of age. At 8:30 a. m., on September 24, 1903, he was playing with an atomizer which contained about one-half ounce of a dark fluid, which the child's father had been using for catarrh. This fluid is a secret nostrum prepared by a doctor in a small Ohio town, sold only by him, and is not known by any particular name. It seems, however, to enjoy a considerable reputation among the laity as a cure for asthma, for which it is particularly recommended. During his play, the child inverted the atomizer and some of the fluid ran through the tube into its mouth, about one dram in all, by estimation. His mouth was immediately washed out, and the mother felt no alarm, thinking

that a little medicine used for spraying the nose could do no harm if it happened to get into the stomach. There was nothing on the original bottle to advise her to the contrary. About 10:30 a. m. the child was put to sleep, one-half hour earlier than usual, as he had had a rather restless night from some digestive disturbance. No symptoms had thus far developed as a result of the accident. At 11 a. m. the nurse heard the child crying and, on going into the room, found him in crazy delirium, and exhibiting frequent muscular contractions from which she concluded that the child had convulsions. I saw him first at 11:30 a. m., three hours after the accident, and found him in crazy delirium, talking constantly, though his words were quite unintelligible. In health he talked unusually plain for a child of his age. The pupils were widely dilated, just a faint rim of iris being visible. The tongue was thick and apparently very dry. There was no rash anywhere on the body, nor was there subsequently, nor had the nurse noticed any previous to my arrival. As he sat on the nurse's lap, he would have an attack of vertigo about every two minutes, and at each attack, with the effort to recover his balance, he would have a clonic spasm of the muscles of the arms and legs. At each attack of vertigo he would cry out as though in great fear. The face exhibited a peculiar pallor when I first saw him, which continued for about an hour. The pulse was fairly full, but rapid, about 140 per minute. Vision was not lost as he could recognize near relatives at a distance of 10 feet and could call them by name in spite of his active delirium.

As the child had breakfasted at 7:30 a. m., it was not thought advisable to empty the stomach, either by emetics or the stomach-tube. Pilocarpin hydrochlorate in 1/20 grain doses was administered by mouth and repeated in 15 minutes. This seemed to decrease the dryness of the mouth and throat. Morphin sulphate in 1/32 grain doses was given every 15 minutes, by mouth, for four doses, but seemed to have no effect whatever. Immediately after the last dose he vomited a considerable quantity of semiliquid material, containing small undigested pieces of peach which he had eaten for breakfast. The act of vomiting brought on an attack which might be described as the first stage of infantile convulsions, cessation of breathing, livid countenance, eyes fixed, etc. There were no convulsive movements of the muscles. He quickly recovered from this and was given a mustard bath. Before the bath, while taking a drink of water from a thin glass, he bit a piece out of the rim apparently from an involuntary contraction of the jaw, somewhat tetanic in character. After the

vomiting the symptoms of poisoning seemed to be rather intensified.

On the supposition that some of the poison still remained in the stomach unabsorbed, an attempt was made to pass the stomach-tube, consisting of a No. 16 French catheter with tube and funnel attached, but without success, as spasms of the throat occurred and the child was nearly asphyxiated. On the arrival of Dr Lee, the family physician, at 2:30 p. m., it was decided to give morphin hypodermically. One-fortieth of a grain was given at intervals of one hour, with no apparent effect upon the pupils and none upon the delirium until after the third dose when a slight quieting effect was noticed. About an hour after the fourth dose the child fell asleep, arousing with a cry twice during the night, and then slept soundly until 11 o'clock the next morning, when he awoke, perfectly well. During the attack, the kidneys acted well, urine being passed several times. A free bowel movement was obtained early in the afternoon after two injections. The temperature was not taken at any time, but he showed no signs of fever. There was no apparent increase in the number of respirations. During the afternoon, the delirium changed from the crazy to the busy type, occasionally resembling also delirium tremens, in that the patient saw imaginary animals moving about. At times he would attempt to pick imaginary food from his fingers and place it in his mouth. At times he would go through the motions of feeding himself with a spoon in the most realistic manner.

The case was an extremely interesting one to me owing to the completeness of the train of symptoms and because it afforded an opportunity of studying the physiologic effects of belladonna on the human subject. As children stand much larger doses of belladonna, comparatively, than the adult, the effects were doubtless the more marked on that account.

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EDITORIAL

Epidemic Typhoid and Impure Water-Supply

The classification of cities according to their respective typhoid fever death-rates cannot fail to prove an instructive lesson at this time, and, even at the risk of slight repetition, we quote the following figures from the last edition of Harringtons' Practical Hygiene, which are for the year 1896 after the installation of filtration beds or driven wells in the respective municipalities and are calculated on the basis of 100,000 population. The average rates for the preceding four years are given immediately below:

CITY	POPULATION	SOURCE OF WATER-SUPPLY
Newark, N. J. ¹	230,000	Impounded water from Pequannock River, filtered.
Quincy, Ill. ²	42,000	Mechanical Filters, Mississippi River.
Chattanooga ³	40,000	Mechanical Filters, Tennessee River.
Indianapolis ⁴	165,000	Driven Wells and White River.
Lowell ⁵	85,700	Driven Wells.
Atlanta ⁶	110,000	Mechanical Filters, Chattanooga River.

¹ Average rate, 1890-1896, 38.1; reduced 45 per cent.

² Average rate, 1890-1896, 53.6; reduced 51.5 per cent.

³ Average rate, 1890-1896, 68.2; reduced 56 per cent.

⁴ Average rate, 1890-1896, 64.5; reduced 36.4 per cent.

⁵ Average rate, 1890-1896, 77.6; reduced 45.9 per cent.

⁶ Average rate, 1890-1896, 85.1; reduced 29.5 per cent.

Examples of epidemic typhoid fever and of limited outbreaks of the disease traced to infected water-supply are many. The first one of any extent which was traced to the use of specifically polluted water was that at Lausen, Switzerland, in 1872. This epidemic was traced directly to a brook into which the excreta from four cases of typhoid fever had been carelessly thrown. The epidemic at Plymouth, Pa., alluded to in an article published elsewhere in the JOURNAL, was traced to a similar carelessness in the care of a single individual, the total number of cases developing as a result being estimated between 1,000 and 1,500, while the number of deaths was not less than 114. The epidemic at Ashland, Wis., is of peculiar interest, in that it serves to illustrate the danger of using the same body of water as a source of drinking water and for the disposal of sewage. The city is located upon Cheuquamegon Bay, from which the water was taken from an intake located about a mile from the shore, while the sewage of the city was discharged into the bay farther to the west and south. During the winter of 1893 and 1894 typhoid fever broke out in the city with a resulting disastrous epidemic, which led happily to the installation of a model filtration plant. A curious incident connected with this epidemic was the suit, brought by a widow of one of the victims, against the city, based on the charge that the water of the bay had become contaminated from the city sewers. The court in this case decided in favor of the plaintiff to the amount of \$5,000. The epidemic at Butler is another striking illustration of the danger of infected water-supply. The last illustration of a similar epidemic is that cited in the *Montreal Medical Journal* for March, 1904, in which a similar outbreak of typhoid fever occurred in the suburbs of the city as a result of contamination of the water-supply. These illustrations are taken at random from a large number of similar examples, and serve to emphasize the great importance of providing for every municipality a pure source of water for domestic use. It is a self-evident fact that the pollution of a body of water used for drinking purposes is anything but sanitary, and while it is well to lay stress upon the necessity of providing some other means for the disposal of sewage, as by gravity beds, this in itself is not enough, and the installation of a proper filtration system is the only means by which we can protect ourselves against contaminated water. The figures for the cities cited above are in themselves demonstration enough, if any such proof is needed at this time.

Sudden Death

The question of sudden death is often one of great medico-legal as well as of unusual scientific interest. The possibility of determining with any scientific accuracy, in many instances in which two or more individuals have met death, which one survived, is practically impossible, and is a fact recognized by the laws of many of our States, special rulings being in force to meet such contingencies based upon the purely arbitrary view-point of the presumption of death.

There arise at once, in determining whether or not death has been the result of homicide or suicide, a number of important points held by all medicolegal experts as valuable determining factors in deciding the question at issue. Medicolegal literature, however, abounds with illustrations which seem to be an exception to every established rule, both as to the instantaneous cessation of life after certain injuries and to the established notion of the latitude of suicidal possibilities.

Among the best-known instances of extraordinary suicide is the case reported by Casper of the man who first shot himself in the breast, then placed his revolver in his pocket and walked some distance (about 30 feet) to a pond and accomplished effectually his desire by drowning himself. Quite the most sensational case of recent times is that of Alfred Sellgren, who was found dead the last of January of this year. The postmortem examination revealed eight bullet wounds, the larger number of which were situated in the neighborhood of the heart. The first shot entered below the fifth rib; the second one-half inch from the first; the third struck the fourth rib, and did not penetrate the chest; the fourth entered below the third, and the fifth went in above the fourth. At this period the would-be suicide was obliged to reload his revolver, the chambers of which were empty, and to start anew on his mission of self-destruction. The sixth shot entered just below the sixth rib, just above the diaphragm, the seventh penetrated the abdominal cavity, while the eighth did not enter the body and caused only a superficial wound. The pistol here, as in the instance alluded to above, was found in the pocket of the suicide.

The point of especial interest in this case, apart from the extraordinary determination of the man to accomplish his end, is the fact that two of the bullets had gone entirely through the right ventricle of the heart, and that there remained strength enough to enable the suicide to fire the last three shots and then

place his revolver in his pocket. The strongest evidence of suicide in this case was the powder-blackened and burned thumb and index-finger of the left hand. It was evident that he had held the barrel of his pistol against his chest with his left hand, and had worked the trigger with his right thumb. It should be remembered, however, that ordinarily the position of the weapon in relation to a dead body can never afford absolute evidence as regards the question of suicide or homicide, and yet in this instance we have the location of the wounds all suggesting the probabilities of self-infliction and the burned thumb and finger as corroborative evidence. Who, however, would be willing to believe without the evidence before us that such a feat was within the domain of the possible!

In the face of such a remarkable demonstration of vital endurance, our ideas as to the absolute fatality of certain wounds and the suddenness of death in injuries of this nature must be modified. That injuries to the heart and even its penetration by a missile have not resulted in instantaneous death is a matter of record, and, in the face of accumulating evidence, we are forced to admit that injury to the basal ganglia is alone the surest source of sudden death, and in cases in which they have escaped injury, our conclusions as to the moment of death can be, at best, mere conjecture.

The Clinical Aspect of Eclampsia

In these days of exact laboratory research when we are often lost in a maze of theories more confusing than helpful to the uninitiated, it is reassuring to find one in authority asserting the importance of clinical data as gleaned from the practical observation of a long series of cases.

Much has appeared of late in medical literature in reference to the various theories as to the true cause of puerperal eclampsia, and in many of the articles published, stress (too great stress, we believe) has been laid upon the rôle of the urea elimination as determining the presence or absence of danger. In a brief communication in the *Therapeutic Gazette*, for February 15, Hirst states that, in his judgment, among the evidences of threatened eclampsia there is nothing comparable in value with the presence of albumin in considerable and increasing quantities in the filtered urine. He adds, the urea excretion is valueless in comparison. Pregnant women excrete anywhere from three to over 30 grams of urea a day, but usually less than the normal, 20 to 24 grams. Hirst has seen an extremely low output of urea

without the slightest disturbance to health, and occasionally a rapidly increasing toxemia with an excretion of over 30 grams in the 24 hours. This statement from one who has had such a large and varied experience will, it is to be hoped, do much to refute the impression so generally given by recent literature that the urea factor is the important one in threatened eclampsia, and bears out wholly the results obtained by Clark, and given in a paper which appears in full elsewhere in this issue of the JOURNAL.

Eosinophilia

The life history of the eosinophilic leukocytes, as found in the circulating blood and tissues, has always been obscure. They present such a characteristic appearance and occur so constantly in the blood and certain tissues that the significance of their presence and the variations of their number, under certain conditions of health and disease, have excited much speculation. Opie, in the *American Journal of Medical Sciences* (February and March, 1904), reports his investigations as regards their normal occurrence in the lower animals, especially in guinea-pigs. He has also studied their relation to the state of nutrition of the animal and to the eosinophilia produced by infection with the *trachina spiralis*.

That large numbers of these cells exist normally in the intestinal mucosa and other tissues of man and some of the lower animals, has been known. As to their origin, different sources are given by various authorities. They have been ascribed to multiplication of the eosinophilic cells in the circulating blood or transition there from polymorphonuclear neutrophiles. Others think that they can be formed by transition from certain cells in the tissues, such as polymorphonuclear neutrophiles, lymphocytes, plasma-cells, and even connective tissue, and muscle cells. Intermediate types between these and eosinophilic cells can be found, and therefore they are believed to furnish eosinophiles. Opie, however, holds that they originate solely in the bone marrow and that, in the guinea-pig at least, they are formed in no other tissues, or, if found, they have been carried there by the blood. He has actually observed their migration from the vessels into the tissues and noted an increase in their number within the lumen of the vessel. Coincident with an increased circulatory eosinophilia is found evidence of active proliferation of eosinophiles in the bone marrow as shown by numerous mitotic figures.

The relation between nutrition and the number of eosinophiles

seems fairly constant. During starvation the eosinophiles decrease absolutely and relatively; their number in the bone marrow is slightly reduced although the other tissues may show a decreased number. This seems to indicate that the failure of nutrition interferes with the continued manufacture of eosinophilic cells in the bone marrow. On resuming the administration of food, the number of eosinophiles in the blood again becomes normal, but during temporary changes of weight, caused by short periods of fasting, a loss of weight is accompanied by an increase of the circulating eosinophiles, and *vice versa*.

Some parasitic diseases seem to have a decided influence upon these cells in the blood and tissues, and this is especially true of trichinosis, which has been suspected in several cases on account of the high eosinophilia, and later confirmed by the finding of the parasites in the muscles. Opie injected guinea-pigs with this parasite and finds that the process resembles that seen in man. The maximum circulatory eosinophilia occurs about the time the embryos are migrating from the intestine into the tissues. At this time are also found local accumulations of eosinophiles in the mesentery and lungs. This is supposed to be caused by the passage of the embryos through these tissues. The subsequent increase of the eosinophiles in the muscle is accounted for by the presence of the trichinæ there.

The production of the eosinophiles in this disease seems to be limited to the bone marrow. In it the fat is diminished and eosinophiles seem to be derived from the eosinophilic myelocytes by mitosis. In very severe infections eosinophilia does not develop, and in ordinary cases, shortly before death it disappears and the bone marrow shows large numbers of degenerating eosinophiles. This fact would seem to explain the absence of eosinophilia in some reported cases of undoubted trichinosis.

Senate Bill Number 109

Our attention has been called to a bill, under the above heading, for the appointment of a commission to select and purchase lands and erect thereon the necessary buildings and structures for a State Sanitarium for the treatment of incipient pulmonary tuberculosis. This bill, which is to be brought before the Ohio State Legislature, confers upon the commission composed of the Governor, Auditor of State, Attorney-General, and Secretary of the State Board of Health, together with one additional member to be appointed by the Governor, power to select and purchase,

in behalf of the State, not less than 350 acres of land in this State suitable for the location of a State Sanitarium, to be known as the Ohio State Sanitarium, for the treatment of residents of Ohio suffering from incipient pulmonary tuberculosis.

It is needless for us to call the attention of the profession and of the laity to the importance of this measure. The good results achieved in the sanitarium treatment of early pulmonary tuberculosis, the world over, have led, during the last five years, to the more general establishment of sanatoria, and any and every measure which helps in the fight against this great scourge should receive not only the endorsement but the enthusiastic support of every physician as well as of every layman. Section 8 of this bill provides that the sum of \$35,000 be appropriated out of any moneys in the State Treasury, not otherwise appropriated, for the purpose of carrying out in part the provisions of this Act.

It is reassuring to learn that this bill has reached its present stage, and we are glad to know that even so meager an amount has been asked for as an appropriation for carrying out this project. Everyone, however, who has had experience in the erection and equipment of sanatoria will realize that this amount can go but a short way toward the purchase of land, erection of buildings, and equipment of the same. We should, however, be grateful for every little aid toward the final result, and would urge upon the profession their unflinching zeal in the support of this measure. We would suggest that each physician in the State make it his personal interest to keep in touch with his Representatives in the State Legislature, urging upon them not only the necessity of carrying this measure through to a successful issue, but the importance also of a larger appropriation.

House Bill No. 74

We desire to call the attention of the profession to the bill entitled "House Bill No. 74," which is to be brought before the Ohio State Legislature in the near future. The points involved, which in our judgment merit the careful consideration of every physician in the State, are briefly as follows:

Sec. 3110 now provides: "The husband must support himself, his wife and his *minor children* out of his property or by his labor, and if he is unable to do so, his wife must assist him as far as she is able."

It is proposed that this section shall be so amended as to

make it no longer a duty of the husband or wife to support their minor children, and, further, that there can be no legal claim upon a father or mother for services rendered their minor children. Under the law at present in force, and as it will remain, if these proposed amendments are passed, the parents are entitled to the personal earnings of their minor children until they reach the age of majority.

In the face, then, of these amendments, if they become a law, it will be impossible for a creditor to attach the personal earnings of minor children for services rendered, or to hold the parents responsible for the same.

It is also proposed to amend Section 3112 and Section 3115 so that the husband and wife may be released from any liability for contracts entered into in behalf of their minor children.

It is further proposed to amend Section 5430 so that it may be no longer legal to attach the customary 10% of the personal earnings of the debtor for necessities supplied to the debtor, his wife, or children.

It is difficult to interpret the underlying motive involved in the changes here briefly outlined, but it is patent enough that any such established law would work great hardship to physicians as well as to the individuals in favor of whom the supposed resulting benefits (?) would accrue. The Legislature may enact laws widely at variance with traditional customs and natural relationships, but it is indeed questionable whether any good can be derived from the unnatural interpretation of existing relations as implied in these proposed amendments. In our judgment, they can only work harm. The *Cincinnati Lancet-Clinic* has well said: "If these laws are amended as proposed, the poor man, when out of work or when ill, may have difficulty in obtaining credit, for under the new law he cannot be compelled to pay his just indebtedness," and no honest man is willing to submit to the suggestion of implied dishonesty in a too literal interpretation of such a law.

We trust that having brought these proposed amendments to the notice of the profession of Cleveland, some action may be taken in reference to them by our authorized city medical organizations.

It is plain that such laws are harmful, not only to the interests of physicians, but must tend to degrade the moral standard of the masses and encourage dishonesty and laziness, and eventually over-crowd our already over-taxed charitable institutions.

The Price of Antitoxin

Our attention has been recently called to certain criticisms relative to the supposed increase in the price of antitoxin, as supplied by a number of the large drug-houses, and the implied inference that there has been an organization formed among these firms with a view to maintaining an exorbitant price. We are glad to be able to state definitely from information which we have obtained that there has been no attempt to form a so-called antitoxin trust, and that the change of prices, which has recently gone into effect, is really a new scale based upon a wholly new classification on the part of the manufacturer of the various strengths of antitoxin supplied to the market.

We are confident that any system on the part of the manufacturers which will tend to simplify the old and somewhat cumbrous method of notation, employed to denote the strength of the various packages, will be greatly appreciated by the profession at large, and the manufacturers are to be congratulated upon a step in the right direction.

Announcement

PUBLIC LECTURES ON PROBLEMS OF SCIENTIFIC MEDICINE

The faculty of the Medical College of Western Reserve University announces the contemplation of a series of advanced lectures on current problems of medical science. It will be the object of each course to take up a circumscribed topic, treating rather exhaustively and critically the special literature, the experimental and clinical data, the theories, current opinions, unsolved problems, and the general outlook of the subject. Special stress will be laid upon the personal observations of the lecturers and on the bearing of the results in medical practice.

Each course will consist of eight monthly lectures, delivered at the Medical College, in the hours named below, from October to May, inclusive. Three courses are offered for 1904-1905. If sufficient interest is manifested on the part of the profession, it is intended to institute similar courses in future years, altering the topics and lectures as may be desirable. The fee for each course of eight lectures has been fixed at \$5.00; students of the College will be admitted free.

One or all courses will be withdrawn without further announcement, unless sufficient subscriptions are received by June 1, 1904, to show that the need for this advanced instruction

is appreciated. Applications should be sent to Dr T. Sollmann, at the College.

PROVISIONAL SYLLABUS:

The courses to be offered in 1904-1905 will cover the subjects mentioned below, as far as time will permit. The right is reserved to alter the details.

Course I: DR WILLIAM T. HOWARD, JR.: *Tumors, their Structure, Histogenesis, Classification, Distribution and Diagnosis. Illustrated with Gross and Microscopic Preparations.*

The third Friday of each month, at 4 p. m.

The course will begin with the study of the anatomic and biologic characteristics of the important groups of tumors. Following this, the origin of tumors will be treated from the embryologic, histogenetic and etiologic standpoints. With these as a basis, a system of classification will be indicated. The distribution of the various tumor groups in the human body will be printed out. The lectures will conclude with the discussion of the diagnosis of tumors. The course will be made as objective and practical as possible.

Course II: DR J. J. R. MACLEOD: Two topics will be treated, about five lectures being assigned to the first, and the rest to the second subject.

The second Tuesday of each month, at 8 p. m.

(A) *The Fate of Sugars in the Organism; The Chemical Pathology of Diabetes Mellitus.*

The digestion and absorption of carbohydrates; glycogenic function of the liver; Bernard's discovery; glycogen in other organs and tissues; fate of glycogen; derivation of glycogen from foods other than carbohydrates; true and pseudoglycogen builders. The control of the nervous system over the percentage of sugar in the blood; how this percentage is normally kept at a constant level. Experimental diabetes—pancreatic, phlorrhizin, and other drugs; influence of pancreas on combustion of sugar. Diabetes mellitus—percentage of sugar excreted with different diets; glycosuria due to want of decomposition of sugar molecule; evidence of deficient tissue oxidation. Diabetic coma. Remarks on treatment.

(B) *Modern Views Concerning the Mechanism of Digestion.*

General considerations of mechanisms of action of digestive glands; mechanisms peculiar to the salivary, gastric and intestinal glands, the pancreas and liver; psychic influences; chemical influences; the interrelation of the different glands; deglutition; the movements of the stomach and intestines; the absorption of proteids, fats and carbohydrates.

Course III: DR T. SOLLMANN: *The Mechanism of Urine Formation, Normally and in Disease.*

The fourth Tuesday of each month, at 8 p. m.

Historic sketch of the theories of urine formation; mechanic factors in urine formation; circulation and filtration phenomena; functions of the glomeruli; of the tubules; reabsorption theories; excretion of the several urine constituents; occlusion of the ureters; explanation of vital secretions; diuretics; renal poisons; albuminuria; renal glycosuria; diagnosis of urine; uremia; synthetic processes in kidney; internal secretion; nephrotoxic sera; comparative physiology of kidneys in different classes of animals.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Cholelithiasis: J. M. G. Carter, in the *American Therapist*, for December, 1903, believes that the prophylactic treatment is very important in catarrhal inflammatory affections of the gall-bladder, in fact, that is where the physician's work is most valuable. Some of the cases seem to yield to medical treatment, but perhaps the majority will entirely recover only after operation. It is not always possible for the physician to tell just how his treatment produces a cure. Believing that indigestion, or at least impaired or retarded digestion, has something to do with many of these cases, he directs his treatment toward correcting such trouble, and often prescribes pepsin and aromatic sulphuric acid combined with some laxative. One case recovered after a several months' course of blue-mass once or twice a week. It is well in many cases to combine some vegetable laxative with the mercury. The mercury once a week, and phosphate of soda three to six times a week, do well in other cases. He has used in this class of cases, for several years with beneficial results, a combination of blue-mass, podophyllin, aloin, belladonna and ipecac. Some cases do better on calomel or blue-mass once a week, and small doses of epsom salts three to six times a week. Many cases recover by using two or three ounces of salad or olive oil three to six times a week. In cases in which mercury cannot be borne in any form, and epsom salts is objectionable, phosphate of soda and olive oil (taken alternately, each three times a week) may be given. A reduction of meat and fats in the diet is usually beneficial. Especial attention should be given to prevent any degree of constipation. Exercise, moderate diet, avoidance of constipation, and regular habits of life are essential.

Scopolamin: F. X. Dercum, in Cohen's System of Physiologic Therapeutics, Volume 8, states that scopolamin is a remedy of the greatest value in the treatment of insanity. It is an alkaloid closely resembling hyoscin, and one which is considered by many, pharmacodynamically and therapeutically, identical with it. In his experience its action differs somewhat from that of hyoscin—a fact that is perhaps in keeping with the different sources from which these two alkaloids are derived. Merck's hyoscin is

obtained from hyoscyamus while Merck's scopolamin is obtained from another solanaceous plant, *scopolia atropoides*. He believes that scopolamin is more constant in its action than hyoscin, is effective in a somewhat similar dose, and is never attended by the least evidence of depression of any kind. The indication for its use are the same as those for hyoscin, and, like the latter, it can also be given with paraldehyd or other of the hypnotics.

Pneumonia: Delancy Rochester, in the *Medical News* for February 13, states that in the treatment of pneumonia we will get our best results by recognizing the essentially toxic nature of the disease, and treating it along the eliminative supporting lines which he summarizes as follows: (1) The sustaining of the metabolic processes of the individual by the administration of easily digested, or predigested foods, in small quantities, at stated intervals, the administration of large amounts of pure water for eliminative purposes, and the administration of oxygen gas by inhalation whenever the absorbing surface of the pulmonary mucosa is involved to such an extent as to interfere with proper metabolic oxygenation. (2) Elimination, (a) by the liver and bowel through the vigorous use of calomel and salts; (b) by the skin, through sweats induced by external heat; (c) through withdrawal of blood when indicated by right heart distention; (3) stimulation of the heart by strychnin, alcohol or ammonium carbonate, and, in suitable cases, by the subcutaneous injection of normal salt solution; (4) the local treatment of the lung by leeching, wet cupping or dry cupping as indicated. He protests against the treatment of pneumonia by large doses of digitalis in the early stages of the disease, and is convinced of the utter valuelessness of the antipneumococcic sera on the market.

Summer Complaint: W. F. Waugh, in the *New York and Philadelphia Medical Journal*, asserts that the study of the temperature in the so-called "summer complaint" of infants shows the presence of two widely divergent types. In one there is subnormal temperature in the axilla, possibly a little elevation in the rectum, but the whole aspect of the child indicates profound depression and relaxation. The skin is pallid and moist, the eyes sunken, the abdomen depressed; the child lies relaxed and nerveless, its eyes half closed, the whites rolled up. In this condition the benefits of atropin are immediate and marked. Enough should be given to produce any manifest effect, dryness of the mouth, reddening of the face, or dilation of the pupils, and the whole aspect of the case is strongly altered for the better. He then follows with brucine, cautiously repeated in very small doses, until the tonicity of the pulse has been reestablished and the intestinal canal restored to resistant vitality. This with suitable diet and proper attention to the toilet of the gastrointestinal tube gives him the best results. In the other group of cases the forehead and epigastrium are hot; the pupils are contracted, and the tempera-

ture in the rectum shows hyperpyrexia. The child is restless, tossing or jerking, and convulsions may occur. He here gives 1/20 grain of calomel every 15 minutes for five doses. The stomach and bowels are washed out with safe antiseptic solutions, and minute doses of aconitin or veratrin are given if the renal excretion is markedly diminished. Zinc sulphocarbonate is administered to its full effect, that is, 1/6 to one grain, with one grain of bismuth subnitrate, and one grain of saccharated pepsin every 15 minutes till the danger is past. The child should be put into a warm bath which should be gradually cooled by pouring in cold water; iced cloths should be applied to the head. No food should be given.

Bismuth: *Merck's Archives* for September states that nobody questions the great value of bismuth in gastric ulcer, but the question how it acts is not settled yet. Some believe that it has a merely protective action, it protecting the ulcer against being irritated by the acid secretion. Others ascribe it to a specific action. Fuchs concludes (1) that calcium carbonate, calcined magnesia, etc., cannot be substituted for bismuth salts in the treatment of gastric ulcer; (2) the secretion of mucus caused by the ingestion of bismuth subnitrate is not due to a mechanical action of the compound but to a true specific action; (3) the curative action depends on the reduction of the bismuth salt, the reduced bismuth oxid penetrating into the granulation tissue and forming a protective wall. The generally prevalent idea that the black color of the feces during the administration of bismuth sulphide will have to be discarded. Late investigation show that the black color is due to the oxid.

Eclampsia: B. C. Hirst, in the *Therapeutic Gazette* for February, asserts, concerning the treatment of eclampsia, that recent statistics show that postpartum eclampsia is very little less dangerous than antepartum or intrapartum convulsions, and that the proportion of cases in which convulsions cease after labor is smaller than is generally supposed. He is best satisfied with the treatment directed solely to the eclampsia without regard to the uterine contents until such a degree of dilation of the os is secured spontaneously that delivery can easily be secured without violence. In antepartum eclampsia evacuation of the uterus is only indicated if, after the eclampsia is controlled, the patient's urine is persistently albuminous and filled with casts, or if other symptoms of gestational toxemia continue to a degree that excites anxiety. He does not approve of Caesarian section for eclampsia, stating that no other treatment of the disease has so high a mortality except the pilocarpin treatment. One has a mortality of over 40%, the other of over 60%. Two sets of remedies should be employed in treating the convulsions, one is to eliminate the poison, and the other to quiet nervous irritability and muscular activity. It is generally agreed that normal salt injections, sweats,

and purgation are the most reliable measures under the first heading. Diuretics here are of no use because the kidneys, during the attack, are practically nonexistent as secretory organs. He rarely uses venesection. Chloral and opium are among the best sedatives. He has a prejudice against opium, and for the relief of the arterial tension, and contractions of the arterioler, has always used veratrum viride, 20 years' experience with it confirming his original good impression of its value. He believes that if these cases were taken early to a hospital, it would double the patient's chance of recovery.

Epilepsy: In *Medicine*, for February, W. N. Bullard states that in the treatment of epilepsy bromin in some form seems to be the only generally efficient medicine. Personally he prefers the bromid of sodium, varying it occasionally when necessary with bromid of potassium. The triple bromids are often effective. He gives the medicine before meals, and, if necessary, at bedtime, in a considerable amount of water, a half to one tumblerful at each dose. No unpleasant effects have been observed in ordinary doses, 30 to 40 grains a day thus given, except the acne which is best combated with Fowler's solution. He believes the most important object must be the regulation of the diet, plenty of exercise, sleep and occupation of the patient.

Collargol: The *Journal of the American Medical Association* for January 9, states that Schlesinger, of Vienna, has, by his experience, established the fact that collargol is as effective when injected by rectum as when the intravenous route is followed. In certain cases the latter is impracticable owing to the small size of the veins or the obesity of the patient. He found that the course of severe sepsis changed decidedly for the better in three cases under the influence of rectal injection of .15 to .3 grams of collargol in 75 grams of distilled water, repeated twice daily, and kept up for eight days. One was a puerperal process, another thrombophlebitis after typhoid fever. In four other cases these injections had to be abandoned on account of pneumonia, septic diarrhea or negative results. Six febrile consumptives treated with the collargol by rectum have not shown any benefit to date.

Pneumonia: In the *New York and Philadelphia Medical Journal* for January 2, H. C. Elsner calls attention to the use of nitroglycerin in pneumonia, asserting that its indiscriminate use is a growing evil with the profession in this country. If it is true that in pneumonia there is lowered tension from paralysis of the vasomotors, why administer a drug which aggravates the condition? No one denies the paralyzing effect of this drug upon the vasomotor system; this may be proved by blood-pressure study. He states that he has often seen patients treated with some one of the numerous cardiac tonic tablets found in profusion on the market, all of which contain nitroglycerin with

digitalis and a variety of other so-called heart tonics. The patients to whom these tablets have been administered have had most alarming cardiac and respiratory insufficiencies with rapid lowering of the blood-pressure. The firm believers in nitroglycerin have therefore, with pernicious activity, given increasing doses of the drug, only to aggravate the symptoms and produce paralysis. Nitroglycerin may have its use in overcoming obstruction in the periphery, due to tense arteries, sclerosed and narrowed, against which the heart is laboring. This condition is occasionally found in elderly subjects with pneumonia, with or without interstitial nephritis. His experience in these cases has been very unfortunate. In patients suffering from pneumonia in whom paralysis of the vasomotors is already present, it would seem that the administration of nitroglycerin would be dangerous. He can produce no authority founded on physiologic experiments which justifies the use of nitroglycerin as it is administered today by many, and quotes Van Santwood's convincing tracings as proving the baneful effects of nitroglycerin in combating heart weakness in pneumonia.

Reports and Announcements of the Meetings of the Academy of Medicine

At the sixteenth regular meeting of the Academy, held on Friday evening, March 18, 1904, at the Chamber of Commerce, the following program was presented: "The History of Typhoid Fever in Cleveland," by H. E. Handerson; "Character of the Widal Reaction in the Present Epidemic," by L. W. Ladd; "Water-Supply of Cleveland, Past, Present and Future," by William T. Howard, Jr.; "The Intercepting Sewer," by Mr W. J. Carter, City Engineer; "Some Remarks on Filtration," by Roger G. Perkins. The attendance at the meeting was large, and an interesting discussion followed which was led by M. Rosenwasser, who was followed by John P. Sawyer, E. F. Cushing, Edward P. Carter, I. W. Belkowski, G. W. Moorehouse, W. H. Humiston, H. G. Sherman, A. R. Baker, J. G. Spenser, Martin Friedrich. As this meeting was largely inspired by the prevailing epidemic of typhoid fever, which we believe to be happily on the decline, the abstract of the papers and of the discussions which followed were given to the lay press of our city, with a view to increasing the public interest and as a method of public education. The following resolutions were unanimously adopted by the Academy:

Whereas: It is of the greatest importance that the post of City Bacteriologist should be occupied by a man of unquestioned integrity, and as a scientist in the highest degree proficient, it is hereby

Resolved by the Council of the Academy of Medicine of Cleveland that Dr Wm. T. Howard, Jr., a pathologist and bacteriologist of national reputation, and the present incumbent, is in our judgment eminently possessed of these qualifications, and we unqualifiedly endorse his work and express our confidence in the accuracy of his results.

Resolved: I. That the waters of Lake Erie within the zone of the new intake for the Cleveland water supply is subject to the discharge

into it of the sewage of the city, of the sewage and other sources of pollution brought by the Cuyahoga River, of the sewage surface drainage from its thickly populated shores, and of the sewage and garbage from the shipping.

II. The degree of this pollution varies with the seasons, being more marked during the closed seasons and after copious rains and floods.

III. That this pollution is the principal cause of typhoid and allied fevers and of certain intestinal diseases.

IV. That the number of deaths from typhoid fever in Cleveland since the opening of the Health Office thirty years ago makes it certain that the city's water supply has been polluted for that length of time at least. Further, that the present great prevalence of typhoid and allied diseases in the city is conclusive evidence of great pollution at the present time.

V. That the degree of this pollution may be fairly accurately ascertained by the use of modern scientific methods, particularly by the simultaneous employment of bacteriological and chemical analyses, which are complementary.

VI. That as long as this pollution exists we would strongly emphasize the injunctions of the Board of Health and the Health Office that all water used for drinking, culinary purposes, cleansing the teeth, etc., should be boiled actively for at least ten minutes.

VII. That all the discharges of patients with typhoid and allied fevers, diarrhoea and dysentery, should be disinfected with carbolic acid or chloride of lime before being emptied into the sewers.

VIII. That the pollution of drinking waters by sewage being contrary to well established sanitary principles, the sewage should be properly treated—robbed of its disease-producing agents—before it is discharged into the lake.

IX. That since there are sources of pollution which cannot be effectually controlled, the City water supply should be purified before using, and that the most effective method now known is properly conducted filtration.

X. That an intake far enough out in the lake to obtain clear water with a minimum of pollution, a system of intercepting sewers, with sewage purification and a suitable filtration plant, properly run and controlled, will reduce the incidence of typhoid and allied fevers and intestinal disorders to a satisfactory minimum.

XI. That as these are large questions, involving the public health and the expenditure of large sums of money, and can only be correctly passed upon by trained water engineers, the City should employ a commission of one or more experts for scientific advice, based upon careful investigation of the problems involved.

The tenth regular meeting of the Section of Experimental Medicine will be held at 8 p. m., April 8, 1904, at the Cleveland Medical Library. The following program will be presented: "The Influence of Atmospheric Humidity on Respiratory Exchange," J. J. R. Macleod; "Trypanosomiasis with Demonstration," by Roger G. Perkins.

Book Reviews

An American Text-Book of Surgery for Practitioners and Students, by Phineas S. Conner, M. D., Frederic S. Dennis, M. D., William W. Keen, M. D., Charles B. Nancrede, M. D., Roswell Park, M. D., Lewis S. Pilcher, M. D., Nicholas Senn, M. D., Francis J. Shepherd, M. D., Lewis A. Stimson, M. D., J. Collins Warren, M. D., and J. William White, M. D. Edited by William W. Keen, M. D., LL. D., F. R. C. S. (Hon.) and J. William White, M. D., Ph. D. Fourth Edition, Thoroughly Revised and Enlarged. Octavo, 1,364 pages. Philadelphia, New York, London: W. B. Saunders & Company, 1903.

This standard work is already so well known, that the present revised edition demands mention of but some of its points of superiority over preceding editions. To keep such a work abreast of the times, when such rapid strides are being made in surgery, requires great efforts on the part of the editors. The size of the volume must be kept within bounds, and when such valuable material is available it is hard to decide which must be discarded. The size of this edition does not exceed that of the previous one, although several entirely new chapters have been added, including military, naval and tropical surgery. The necessity of this is apparent when one considers the recent extension of this country's interest in the Philippines and far east, and the consequent demand for American surgeons there. The chapter on minor surgery, at first sight, seems rather brief, considering the large proportion of this work falling to the general practitioner, but a large part of the details falling under this head will be found in other chapters, such as those on wounds and contusions, operative surgery, etc. Valuable additions have also been made to the chapter on the pancreas. The clinical examination of the blood has a new chapter devoted to it, and the present views on immunity are given. A number of new illustrations have been added and the former text has been thoroughly revised. The continued success of this popular work seems assured.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart A. Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M. D., Assistant to the Out-Patient Medical Department of the Jefferson Medical College Hospital. Volume III., September, 1903. Diseases of the Thorax and Its Viscera, Including the Heart, Lungs, and Bloodvessels—Dermatology and Syphilis—Diseases of the Nervous System—Obstetrics. Lea Brothers & Company: Philadelphia and New York. 1903.

The contents of this volume includes a discussion of the Diseases of the Thorax and Its Viscera, by William Ewart, M. D., F. R. C. P., Dermatology and Syphilis, by W. S. Gottheil, M. D., the Diseases of the Nervous System by William G. Spiller, M. D., and Obstetrics by Richard C. Norris, M. D. These authors are all too well known along their own line to need any extended com-

ment. This volume of *Progressive Medicine* maintains the standard so well appreciated by all readers of the work. The chapter devoted to Dermatology and Syphilis contains much of great interest and unusual value, all the most recent conditions being fully described. Dr Spiller's work upon the nervous system is always exhaustive and interesting, and this review is no exception to the general rule. In the section devoted to obstetrics, the subject of eclampsia is perhaps the most interesting to the general physician. The work as a whole has much of value to the general physician as well as to the specialist interested only in the subjects treated of.

Progressive Medicine, Vol. IV, December 1903. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 434 pages, 46 illustrations. Lea Brothers & Co., Publishers, Philadelphia and New York.

This volume opens with an exhaustive review of the recent literature and work done upon the diseases of the digestive tract and allied organs by Hemmeter, of Baltimore. There is perhaps no one better qualified to present the essential points of the newer work in this specialty than Dr Hemmeter. Perhaps the most generally interesting paragraphs are those devoted to the Diseases of the Pancreas, alluding to the work of Opie, Chittenden and Fitz, of Boston, which have done so much to illuminate our knowledge of this obscure organ. The subject of surgery is considered by Joseph C. Bloodgood, of Baltimore, and consists of a review of the subjects of Anesthetics, Fractures, Dislocations, Amputations, and Surgery of the Extremities, and Orthopedics. The paragraphs devoted to the consideration of surgical shock review the recent work of Crile and Cushing. There is included in this review a very complete consideration of the subject of tumors, both benign and malignant. The volume is concluded by a review of Genito-urinary Diseases, from the pen of Dr William P. Belfield; Physiology, by Albert P. Brubaker, and Hygiene by Charles Harrington. This volume is as complete in the information offered as one can desire, and forms an eminently satisfactory reference-work for review of the subjects treated.

Progressive Medicine, Vol. I, March, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Octavo, 337 pages, 7 illustrations. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

Volume I, 1904, opens with a consideration of the Head, Neck and Thorax, by Charles H. Fraser, M. D., of Philadelphia. The section in Dr Fraser's monograph devoted to the surgery of the heart is perhaps the most interesting. He reviews the sub-

ject of surgery of the cranial nerve, going into some detail into the question of the operation for trigeminal neuralgia. The subject of Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza, is reviewed by Robert D. Preble. The Diseases of Children are considered by Floyd M. Crandall, and Laryngology and Rhinology, by Charles P. Grayson. This volume promises well for the series of 1904. We note with approbation the change in the binding and consequent reduction in price, to \$6 per year, which we are sure will prove acceptable to everyone concerned.

The Annual Report of the Board of Regents of the Smithsonian Institution showing the Operations, Expenditures and Condition of the Institution for the Year Ending June 30, 1902. Washington Government Printing Office, 1903.

We are indebted to the Secretary of the Smithsonian Institution for this Annual Report which comprises a vast amount of important and scientific information in addition to the more detailed report of the operations of the Institution for the 12 months designated. The work covered by this volume is of unusual interest, comprising a wide range of extremely valuable scientific and technical information as well as much that is of a popular character.

The short sketch of Virchow's life, translated from Rundschau, will appeal especially to medical readers. The Regents of the Smithsonian Institution are to be congratulated upon the work achieved and upon the way in which it has been presented to the public in this Annual Report.

The American Year Book of Medicine and Surgery for 1904. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and textbooks of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of George M. Gould, A. M., M. D. In two volumes. Volume I, including *General Medicine*. Octavo, 673 pages, fully illustrated. Volume II, *General Surgery*. Octavo, 680 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Per volume: Cloth, \$3.00 net; Half Morocco, \$3.75 net.

The American Year Book of Medicine and Surgery for 1904, containing a complete review of the broad fields outlined during the past year, continues to maintain its high standard so well known. Dr Gould is to be congratulated in having been able to secure the co-operation of an editorial staff so eminently fitted to review with judgment and editorial criticism the literature of the past 12 months. We have always considered this work among the best of its kind, the arrangement of the subject matter, the exhaustive and complete index all contributing toward facility of use. As between the two volumes of Medicine and Surgery

there is little, if any, choice, the editorial staff in charge of the latter volume being as eminently judicial as the editors of the work on medicine. The mechanical make-up of these two volumes is excellent, and the paper, typography and plates are of the highest order, for which the publisher is so well known.

Roger on Infectious Diseases: Their Etiology, Diagnosis and Treatment. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris, etc. Translated by M. S. Gabriel, M. D., New York. In one octavo volume, of 864 pages, with 43 illustrations. Cloth \$5.75, net. Lea Brothers & Co., Philadelphia and New York, 1903.

Dr Gabriel is to be congratulated upon his translation of this work so well known and appreciated in the original. There are few men who could have taken the broad philosophic as well as practical view of the origin, course, and ultimate end of infectious diseases as has been done by Dr Roger. This volume represents in an unusual way the experience of a great clinician together with the results of laboratory research happily combined so as to give a true and just balance and perspective between the two fields of scientific medicine. Taking up the consideration of the pathogenic agents, their distribution in nature, and the conditions under which they attack man, as well as their mode of invasion, the author traces step by step all the essential processes in the evolution of disease. The subjects of heredity, predisposition and immunity are also considered in a way that illuminates our preconceived ideas, and makes the study of the subjects presented delightful reading. Among the most interesting sections in this work is the chapter devoted to experimental appendicitis, which is of extraordinary interest in the light of the modern prevalence of this disease. After reading it one must be convinced that trauma plays a larger part in the etiology of appendicitis than we have, perhaps, hitherto been willing to admit. The author's experimental work along the lines of pseudotuberculosis and variola are too well known to need comment. The concluding chapters of this work are devoted to a masterly treatment of the practical side of the subject, considering diagnosis, prognosis, and, in great detail, the therapeutics of infectious diseases.

Diseases of the Eye. By L. Webster Fox, A. M., M. D., Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia, Pa.; Ophthalmic Surgeon in the Medico-Chirurgical Hospital. D. Appleton & Company. 1904.

This volume is the "outgrowth of a series of lectures delivered by the author" to medical students for the last ten years and is intended "to provide a digested summary of the known facts for the use of students who in after-life become practitioners of medicine." The most modern lines of treatment are considered. Reference to the X-ray in treatment occurs in numerous places throughout the work; as in trachoma, tuberculosis of the conjunctiva, but not in spring catarrh, in sarcoma and in epithelioma. Subconjunctival injections receive favorable notice for certain

diseases, as corneal ulcers, the absorption of corneal opacities after the acute symptoms of interstitial keratitis, iritis and hyalitis. In all these conditions he seems to prefer the saline solution to the bichlorid or cyanid of mercury. For a book of this size it seems to us that upon some subjects he is not sufficiently explicit and too brief. Other subjects are treated with more than the ordinary fullness and thoroughness, as, for example, operations upon lids, pterygium, conical cornea, the Roentgen ray in detecting and locating foreign bodies in the eye, and cataract. His own personal views as based upon his large experience appear frequently throughout the book, and, of course, add to its interest and give it its chief value. He also describes some operations which he has devised, as, for example, his operation for ptosis, and that for divergent strabismus. The work is freely illustrated; very many of the illustrations are new and not a few are photographs of his own patients. At the beginning of the book he gives a short chapter upon the anatomy of the eye and near the end adds a brief chapter upon the relation of ocular affections to general diseases. In the appendix he gives one section to general operative technic with illustrations of the various instruments used, a formulary with prescriptions for the various diseases, a glossary of eye terms and a good-sized index. The publisher's part of the work is well done.

Biographic Clinics. Volume II. The Origin of the Ill-Health of George Eliot, George Henry Lewes, Wagner, Parkman, Jane Welch Carlyle, Spencer, Whittier, Margaret Fuller Ossli, and Nietzsche, by George M. Gould, M. D., Editor of American Medicine, Author of Borderland Studies, etc. Philadelphia: P. Blakiston's Son & Company, 1012 Walnut Street, 1904.

This volume is similar in intent to the one which appeared from the same author's pen about a year ago. It is written to show that the ill health of the persons, whom he takes up for consideration, was due to eye-strain. He undertakes to prove nothing new, but follows the same line of study as he observed in his first volume and arrives at similar conclusions, namely, that eye-strain was the essential factor in all the illness and suffering of those persons. In the first volume he studied the lives of DeQuincey, Carlyle, Darwin, Huxley and Robert Browning, and in this one he considers the cause of the ill health of George Eliot, George Henry Lewes, Wagner, Parkman, Jane Welch Carlyle, Spencer, Whittier, Margaret Fuller Ossli and Nietzsche. There is also a chapter upon "Eye-Strain and Literary Life," which is merely a resumé of the contents and conclusions of the two volumes as given in an address before the Canadian Medical Association, and another upon "Eye-Strain and Civilization," an address along similar lines before the Academy of Medicine of Cleveland.

The author has the unhappy faculty at times of stating things in a manner that is apt to antagonize the profession, even though

what he says is correct and his intentions are undoubtedly the best. Some of his statements and conclusions, when taken by themselves, seem rather exaggerated, and like the words of an overzealous and one-sided enthusiast; but, if he is read carefully, it will be found that he usually does not fail to properly qualify these statements. Many of his critics have seen only the bald statement and apparently have overlooked the qualifying clauses.

Because a large percentage of criminals at the State Reformatory at Elmira, N. Y., have marked defects of the eyes, we must not jump at once to the conclusion that the eye-strain consequent upon these defects is the cause of their criminal life. It is more probably true that the defective eyes are merely another of the stigmata of degeneration which is found in these persons. Of course, it does not follow from this that the eyes should be neglected, far from it; the eye-strain and every source of reflex disturbance should, as far as possible, be removed, as these persons are from their very nature less able to withstand a strain than a normally and healthfully constituted individual. The same is true as regards epilepsy, alcoholism and insanity, all of which he mentions. We should in these conditions recognize the importance of eye-strain and always examine carefully for it, but, at the same time, we must not unduly magnify its importance.

There is certainly much of truth and much food for careful consideration on the part of physicians in these two volumes, and it is undoubtedly a fact that a great many physicians, and even many oculists, do not yet seem to realize the importance of this subject of eye-strain. If some of his statements seem overdrawn, he evidently made them so with a purpose—the better and surer to attract the attention of the profession to the importance of the subject. These volumes can be heartily recommended to physicians for their careful perusal.

Physiotherapy

(FROM OUR CORRESPONDENT AT PARIS)

With some friends interested in such matters (an interest newly enhanced by the recent reports of radium experiments at New York, London, Bath, and elsewhere) I visited the *Institut Physiotherapique de Paris* at No. 25 Rue des Mathurins, near the Grand Opera House. Our examination of the methods and apparatus convinced us that the proprietor, Dr Joseph A. Riviere, has practically anticipated much that seems new to those who have not seen his establishment. A native of Mauritis, Dr Riviere has, since he came to Paris, steadily progressed in his adaptations of physical means to the successful treatment of various maladies, notably tuberculosis, malignant tumors, appendicitis, and, ultimately, to cancer itself. This progress is evidenced by his publications. Commencing with the theme entitled, "*du Positivisme en Medicine par la Fonction Nerveuse*," for his Doctor's degree

before the *Faculte de Medicine* in 1884 (which Dr Berillon characterized as "*une these philosophique ou la valeur des vues s'allie a la hardiesse des conceptions*"), Dr Riviere has contributed successively communications to medical conventions and periodicals. In the summer of 1900 his addresses before the International Medical Congress of Electrology and Radiology at Paris attracted much attention. His article in the Transactions (1902) of the British Congress on Tuberculosis on the best treatments by high frequency currents did the same, as did also his paper to the International Medical Congress at Madrid (1903), on "The Treatment of Fibromata and the Prevention of Neoplasms by Means of Physiotherapy." Most opportune and able was his communication at the *Academie Nationale de Medicine* in Paris on December 8, 1903, upon "The Physiotherapeutic Treatment of Cancer." The recognition of the medical world of his services in this department of medical science was manifested at a banquet given to Dr Riviere in Paris last October, on the occasion of his being made Chevalier of the Legion of Honor of France. Professor Lancereau, President of the French Academy of Medicine, and other leading members of the profession, testified eloquently their ample appreciation of Dr Riviere's efficient work and beneficial inventions. The *Journal de Medicine Interne* in its report of the banquet and speeches says: "*ce fut une manifestation sans precedent.*"

Medical News

James Larimore, of Newark, is reported seriously ill.

J. L. Cowden, of Louisville, has removed to Youngstown.

L. L. Taylor, of Xenia, has removed to Yellow Springs, where he will make his future home.

The Clark County Medical Society met on March 7 at Springfield. John H. Rodgers read a paper on "Some Medical Don'ts."

The physicians of Kenton called a meeting on March 8, at which meeting suitable resolutions were drawn upon the death of A. W. Munson.

It is reported that the partnership which has existed between A. H. Korner and F. C. Huth, of Woodsfield, has been dissolved by mutual consent.

The Muskingum County Medical Society held its regular meeting on Wednesday, March 9, at Zanesville. Edward Cass, of Dresden, and Dr Sykes read papers.

It is reported that a regular training school for nurses will be opened in connection with the new Good Samaritan Hospital, corner Ansel Avenue and Superior Street, this city.

The Cincinnati Academy of Medicine met on March 8, and elected the following officers: President, S. P. Kramer; First Vicepresident, John M. Withrow; Second Vicepresident, Julia W. Carpenter; Secretary, Stephen E. Cone; Treasurer, Magnus A. Tate; Librarian, Arch. I. Carson.

The Champaign County Medical Society met at Urbana on March 10. E. W. Ludlow read a paper upon the subject of dropsy. Horace Bonner, of Dayton, was present, and delivered an interesting talk. Dr Houser, of Millerstown, reported a very interesting case. Dr Offenbacher, of St. Paris, was asked to prepare a special paper for the next meeting.

The Academy of Medicine, of Toledo and Lucas Counties, met on March 10. James A. LaSalle read a paper entitled "Empyema of the Accessory Sinuses of the Nose," and Joseph Fox read a paper entitled "Diagnosis and Significance of Pelvic Diseases in Women." Both papers were followed by interesting discussions.

The Canton County Medical Society held its twenty-ninth regular meeting on March 4. Edward P. Morrow delivered a lecture on "Eye-Strain and Reflex Disturbances." J. E. Shorb reported a case of "Arterio-capillary Fibrosis." T. C. McQuate reported a case of "Disease of the Stomach." George F. Zininger reported a case of "Multiple Myeloma." The Society will hold its regular quarterly meeting on the first Friday in April, which will be in the form of a smoker. D. N. Kinsman, of Columbus, will deliver an address.

Deaths

Frederick Mannhardt, of Galion, died March 4.

D. M. Young, of Painesville, died at his home on February 26.

A. W. Munson, aged 85 years, died at Forest on Monday, March 7.

E. S. Brown, of Newark, aged 74 years, died March 12, at his home.

R. M. Biggs, of Portsmouth, graduate of the Louisville Medical College, died at his home on March 5.

George B. Lewis, of Canal Dover, died at his home March 3. Dr Lewis graduated from the Columbus Medical College.

W. W. Highlands, of Newton, died at his home on March 4. Dr Highlands graduated from the Ohio Medical College.

Elbridge G. Hard, of Medina, died at his home on March 1. Dr Hard graduated from the Western Reserve Medical College.

Coroner O. W. Lindsay, of Columbus, died at his home on March 8, after a brief illness. Death was due to uremic poisoning.

John K. Woods, of Van Wert, died at his home on March 3. Dr Woods graduated from the Cincinnati College of Medicine and Surgery.

Guy B. Case, of this city, died on February 27, at Hotel Euclid. Dr Case graduated from the Cleveland College of Physicians and Surgeons, then known as the Medical Department of Wooster University.

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Radium, Radioactive Substances and Aluminum with Experimental Research of the Same

BY MYRON METZENBAUM, B. S., M. D., CLEVELAND, O.

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History: Following the discovery of the X-rays, the entire scientific world, turned its attention to the seeking of new forms of light. In February, 1896, M. Henri, of Paris, showed that if zinc sulphid be exposed to the sunlight so as to render it phosphorescent, that it could be sprinkled on a photographic plate, which was first covered with black paper, and that the plate would be affected just as if it had been exposed to the X-rays.

Following this announcement Professor H. Becquerel, of the Institute of France, commenced a systematic investigation of phosphorescent substances on photographic plates, which were first covered with black paper. A plate thus covered with black paper may be exposed to the sunlight for 24 hours without being affected.

In the course of his research, he exposed the various uranium salts on the covered plates and allowed the sun to act upon them. This showed that under the uranium crystals the photographic plates were affected just the same as if they had been exposed to the sunlight.

On one occasion the weather being stormy he laid a plate on which there were some uranium salts in a drawer. It remained there several days and then he decided to develop it, not expecting to find any change, but much to his surprise, there were well-defined impressions on the plate. Repeating the experiment he found that the uranium salts need not be exposed to the sunlight in order to obtain an impression, but that the uranium was capable of emitting its own rays of light and that these rays were capable of penetrating black paper.

In justice to the discoverer's name all substances, which emit rays of light, that are capable of affecting a photographic plate through black paper in the dark, are said to possess Becquerel rays.

Following up the experiments of Prof. Becquerel, Madam Curie, of Paris, assisted by her husband, M. Curie, found that crude pitchblend, from which uranium is derived, was much more active than the uranium salt itself; and they further found that the waste product of the pitchblend, remaining after the uranium had been extracted, was even more active than either the uranium or the pitchblend. They not only determined this activity by the action on photographic plates, but also by noting the increased velocity with which a charged electroscope was discharged, when the pitchblend was brought near it, as compared with the velocity with which the uranium discharged the electroscope; and also that the waste product of the pitchblend discharged the electroscope with a greater rapidity than did the pitchblend. They, therefore, rightly concluded that pitchblend contained something which uranium did not, and that this active property was to be found in the waste product.

After two years, in 1898, the Curies extracted a new substance, which they called polonium, and soon thereafter a second new substance, which they called radium. A year later their assistant extracted a third new substance, which they called actinium. The discovery of radium promises to be the most important scientific discovery ever given to the world by a woman.

For the discovery of the Becquerel rays and these new substances, the Royal Academy of Stockholm has awarded to M. Becquerel, M. and Madam Curie conjointly the Nobel prize of 100,000 crowns (\$28,000), as being the most important contribution to "Physics and Chemistry" for the year 1903.

Pitchblend: Pitchblend, or uraninit, is found in Bohemia, Saxony, Cornwall and Colorado. It contains about 81% of uranium, and it is in the waste product after the uranium is extracted that radium is found. Commercially, the uranium salts are used in the coloring of glass and give to the Bohemian glass their beautiful dark brown and blue tints.

Uranium nitrate is used in photography in the developing solution, and it is to be wondered at that no photographer should have discovered the action of this salt on photographic plates. If the uranium salts are rubbed in the dark they emit short blue or violet rays.

Radioactivity: If a piece of hard rubber or a stick of sealing-

wax be rubbed with a flannel and brought near an electroscope, it will cause the two leaves of the electroscope to fly apart, due to the fact that both leaves are charged with the same kind or negative electricity. Now if metallic uranium is brought near this charged electroscope it will cause the leaves to come together. The rapidity with which pure metallic uranium discharges the electroscope is taken as the unit or one. The rapidity with which any other substance discharges an electroscope is known as the radioactivity of that particular substance. All the products of radium, uranium, thorium, and as I will show later zirconium and yttrium possess this property of discharging an electroscope. The rapidity with which the electroscope is discharged is noted by a watch, and the distance the leaves approach each other during the interval noted is read by means of a telescope and a finely graduated scale. Certain specimens of radium have an activity of 1,700,000.

Investigation: Following along the line of work suggested by Professor Becquerel, I obtained various samples of uranium salts from different manufacturers in this country and abroad, thereby believing them to have come from different products of pitchblend. Then taking sensitive photographic plates and covering them with black paper, there was placed on each plate a flat object, generally a key, and around the key the pulverized uranium crystals were sprinkled. The plates were then placed in a triple photographic plate-box, each box enclosed in a cigar-box and finally placed in a cupboard in my photographic dark-room. In this way all possibilities for the action of sunlight were absolutely excluded.

Every six hours a plate was developed, and after 36 hours a rather definite image appeared. Most of the uranium salts, even after recrystallizing them several times, require 48 hours to produce definite outlines of the object.

Each experiment was repeated at least twice and many as often as 10 times under exactly the same conditions, using the same substances in exactly the same quantities and allowing the same length of time. I will not enter into many details of the work covering many months, nor of the many unsuccessful results, nor will I speak of the vast number of so-called phosphorescent substances, which are either naturally phosphorescent or in which phosphorescence was induced by exposure to sunlight, or by the burning of magnesia strips near the substance, which I have tried but which have not affected a photographic plate. Beside these substances to be mentioned in this paper, there are several which I will not report as showing activity on a photographic plate until I have completed an entire series of experiments with them.

That the action on a photographic plate is not a chemical action, but one due to the so-called Becquerel rays, I infer from the fact that the substances were separated from the film of the plate by either black paper, a plate of glass, bone, or were placed on the reverse side of the photographic plate, so that the rays had to penetrate the glass before reaching the film. The activity of a particular product I judge from the depth the rays have penetrated the film of the plate, when the same weight of crystals, generally 120 grains, were placed at the same distance, for the same length of time, and spread over the same area.

In this paper there will be mentioned only a single experiment, illustrating the typical action of a particular substance under each different condition and owing to the lack of space, only a few of the pictures typifying the results can be shown.

The full data of the experiments, with all the objects exposed and negatives, are in my possession, by which any experiment may be verified.



Figure I URANIUM SERIES Experiment 1

Piece of Bohemian Pitchblend placed on bare photographic plate. Produced its own image and affected plate for $\frac{1}{2}$ inch around. Time 24 hours.

Experiment 1: Figure I—A piece of pitchblend or uraninit, obtained from Joachimsthal, Bohemia, was placed on a photographic plate and not only did it produce its own image, but it emitted a sufficient amount of rays to affect the plate for more than a half inch all around itself. Time was 24 hours.

Experiment 2: The same piece of pitchblend as in Experiment 1 was placed on the reverse side of a photographic plate, which was covered with black paper, and remained there five days, after which time not only did the pitchblend produce its own image but it cast out sufficient amount of rays to affect the plate for three-quarters of an inch all around itself. In this case the rays first penetrated the glass before reaching the film.

Experiment 3: A hermetically sealed tube of very thick glass, containing five grains of pure metallic uranium, was placed on a photographic plate covered with black paper. After 120 hours it gave a very deep print of itself.

Experiment 4: The same tube as in the above experiment was suspended over a key placed on a bare photographic plate at a distance of half an inch. The time was 90 hours. This specimen of metallic uranium does not seem to be specially active.

Experiment 5: Six crystals of nitrate of uranium were placed on a photographic plate, which was first covered with black paper, and allowed to remain 48 hours, after which time they produced their own image and also cast out a sufficient amount of rays to flash the plate for a distance of half an inch around.

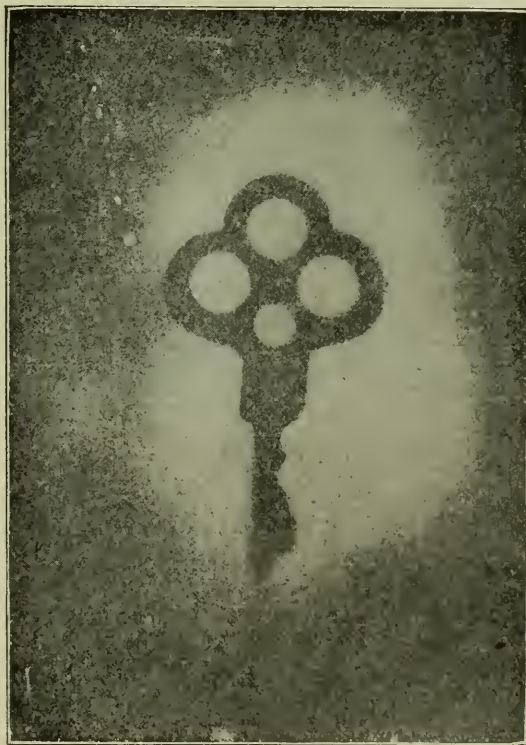
Experiment 6: Powdered crystals of uranic oxid (yellow oxid) were sprinkled around the key, which was laid on the covered photographic plate. The rays in this case have partially penetrated the key. The time was 48 hours.

Experiment 7: Figure II—Powdered crystals of uranous oxid (black oxid) were sprinkled around the key, which was laid on a photographic plate covered with black paper. The time was 48 hours. In this case the Becquerel rays have penetrated the thin steel chiefly around the head of the key. This product of uranium is the most radioactive of any of the uranium salts I possess, and seems to be even more active, than the metallic uranium.

Experiment 8: A bone pleximeter of one mm. thickness was laid on a photographic plate, covered with black paper and the powdered crystals of nitrate of uranium was placed on the plate of bone and allowed to remain 72 hours. In this case the rays have penetrated the bone.

Experiment 9: Thinking that possibly some of the action on the plate might have been due to some of the crystals being accidentally forced under the bone plate, or that the bone did not lie absolutely flat on the plate, thus allowing some of the rays to penetrate under the side

of the bone, I made a trough of black paper, placed this on top of the plate bone, which was laid on a photographic plate, which was covered with black paper, and placed the uranium nitrate crystals in the paper



URANIUM SERIES

Figure II Experiment 7.

Crystals of uranous oxid (black oxid) were placed on glass plate suspended one inch above a plate covered with black paper. Time 92 hours.

trough, and after 72 hours I obtained a picture showing that the rays had penetrated the bone and the two layers of black paper.

Experiment 10: I placed crystals of uranous oxid in an aluminum cup and placed the cup on a plate of bone of one mm. thickness which was on the bare photographic plate. In this case the rays have penetrated the aluminum and the bone. Time 120 hours.

Experiment 11: Uranous oxid was placed in an aluminum box which was placed on a photographic plate covered with black paper and after 60 hours it produced a very deep print.

Experiment 12: Uranous oxid was placed in an aluminum box, which was placed on the reverse side of a photographic plate, and after 72 hours it produced a very deep print.

Experiment 13: Crystals of uranous oxid were placed on a glass plate, which was suspended half an inch above the object which was placed on a photographic plate, covered with black paper, and after 72 hours it gave a well-defined outline of the object.

Experiment 14: Crystals of uranous oxid were placed on a glass plate, suspended one inch above the photographic plate, the left half of which was covered with black paper and a key was laid on each half. The time was 92 hours. At this distance (one inch) it requires nearly twice the length of time to produce the same depth of print. There is very little difference between the half covered with black paper and the half not so covered—the black paper offering but little hindrance to the rays.

SUMMARY

From the foregoing experiments we may draw the following conclusions: that the various uranium salts are capable of affecting a photographic plate without the aid of the direct sun rays; that these rays can penetrate black paper, aluminium, bone, and glass; that they can act at a distance of several inches. At a distance of one inch, it requires about twice the length of time for the rays to act as compared with their action, when only separated from the photographic plate by black paper. After several months, during which time these uranium salts have been used almost constantly, they do not seem to show any loss of power in their action on photographic plates.

The radioactivity, as exhibited in the uranium products, I believe is due to the fact that uranium is derived from the same crude product as radium, and that it possesses none of these properties itself, but probably contains very minute quantities of radium. The different products of uranium vary as to their action on photographic plates, which probably depends upon the amount of radium present in the product.

THORIUM SERIES

All the experiments performed with thorium are the exact duplicates of those performed with uranium, and in all respects the results obtained are the same, except that some thorium products affect a photographic plate with greater rapidity than some of the uranium products I have examined and with less

rapidity than others, a notable exception is one particular specimen of uranous oxid, which is very active.

Thorium is considered the most radioactive substance known, next to that of radium itself. Thorium was originally found in Greenland, but is now obtained in great quantities in a very pure form in South America.

Commercially, thorium is used for the manufacture of Welsbach and similar mantels, these mantels containing about 98% of pure thorium nitrate.

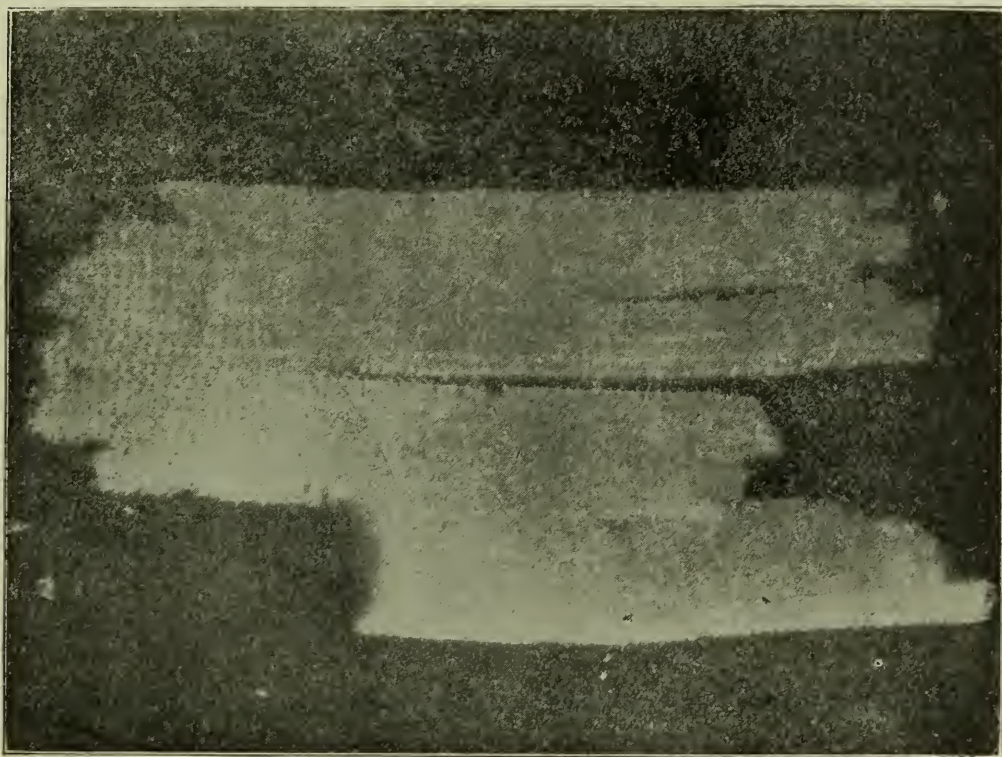


Figure III THORIUM SERIES Experiment I

Fragment of Welsbach mantel laid on bare photographic plate. Due to the Becquerel rays of the thorium it photographs itself. Time 72 hours.

Experiment I: Figure III—I took part of a Welsbach mantel which had been burning on my gas for some time and placed the same on a bare photographic plate. The mantel produced its own image in 72 hours, due to the Becquerel rays contained in the thorium.

Experiment II: A photographic plate was covered with black paper and the Welsbach mantel was placed on top of the paper, it requiring seven days for the rays to penetrate the black paper and 14 days to produce a strong print. The reason for such a long exposure is due to the small quantity of thorium in this fragment of the mantel.

Experiment III: Figure IV—A photographic plate was covered with black paper, a key was placed on top, and the powdered crystals of thorium nitrate were laid around the key. The time was 60 hours.

Experiment IV: Crystals of thorium nitrate were placed on a glass plate suspended one inch above a plate which was covered with black paper on which lay a key. The time was 96 hours.

Experiment V: Crystals of thorium nitrate were placed in an aluminum cup, and the cup was then placed on a photographic plate covered

with black paper. It required four days for the rays to penetrate the aluminum and paper.

Experiment VI: Thorium nitrate was placed on top of a plate of bone of one mm. thickness. The time necessary for the rays to penetrate was 92 hours.

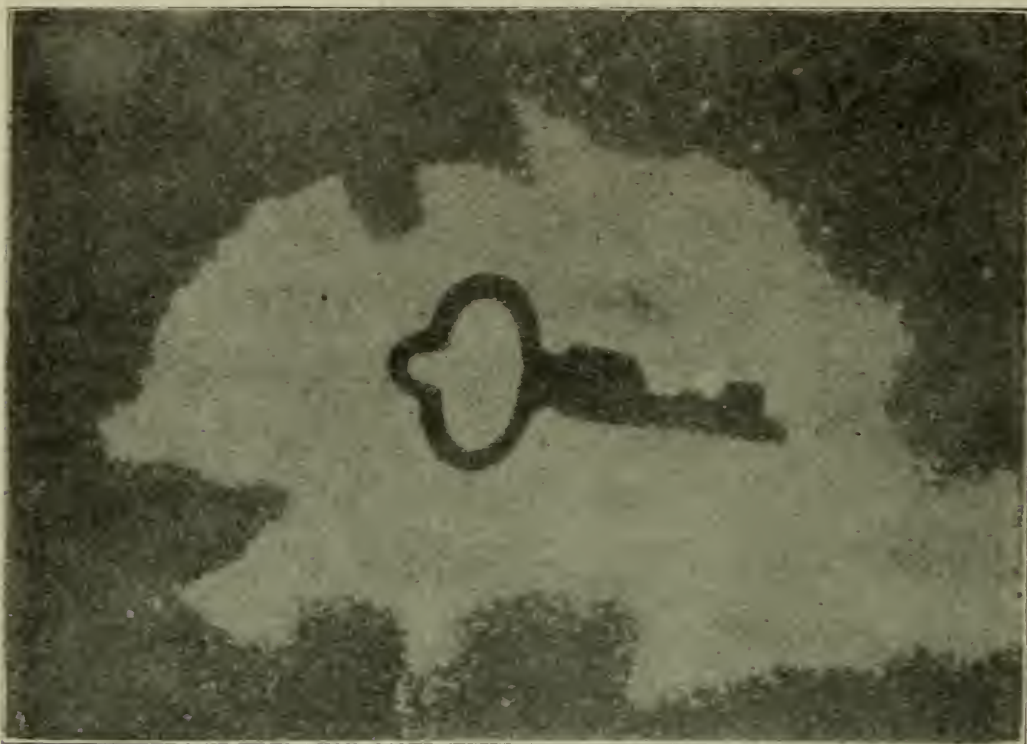


Figure IV THORIUM SERIES Experiment III

Polar Bear picture. Spread crystals of thorium nitrate around key placed on plate first covered with black paper. Time 60 hours.

CONCLUSIONS

From these experiments we can conclude that the Becquerel rays of thorium are capable of affecting photographic plates in the dark without the aid of sunlight; that they can penetrate black paper, aluminum, bone and glass, and at a distance of one inch it requires about twice the length of time it would if it were only separated from the photographic plate by black paper. This radioactivity of thorium is most probably due to a minute quantity of radium, which it contains.

In the investigation of many substances belonging to the same class as thorium, as to the action on photographic plates in the dark, I now wish to report two substances, as affecting photographic plates in the dark, which have hitherto not been reported as having this property. The first is zirconium nitrate, the second yttrium.

I think one may almost draw the inference that all of the other rare substances belonging to this same group similar to thorium, zirconium and yttrium will show a radioactivity. All

these substances are used in the manufacture of the Welsbach mantel, and under the stimulation of the burning gas they emit their strong light.

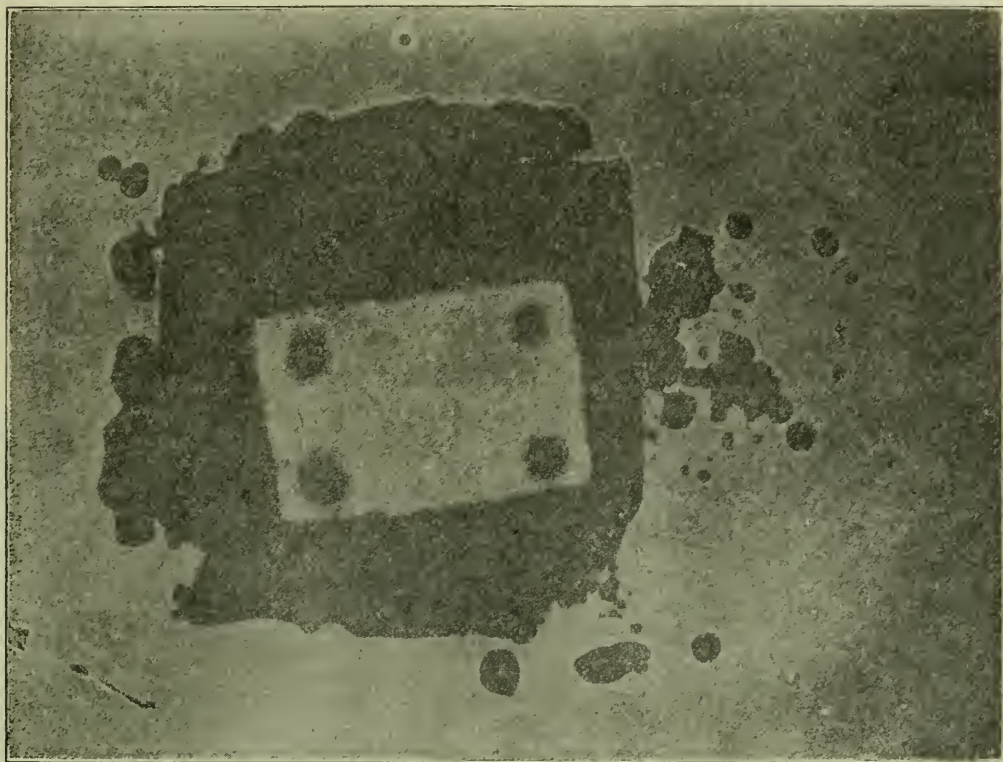


Figure V ZIRCONIUM SERIES Experiment I

Crystal of zirconium nitrate spread around object, which was laid on photographic plate first covered with black paper. This is the first picture made showing zirconium to possess the Becquerel rays. Time 48 hours.

Experiment I: Figure V—I covered a photographic plate with black paper, spread crystals of zirconium nitrate around the object, and obtained a very definite outline of the object in 48 hours, showing the rays to have penetrated the film very deeply.

Experiment II: I placed the crystals of zirconium nitrate on a glass plate which was suspended one inch above a bare photographic plate on which a key was placed. After 92 hours there I obtained a very good outline of the key. These are the first pictures produced by the Becquerel rays of zirconium.

Experiment III: The crystals of zirconium nitrate were placed in an aluminum box and placed the same on a covered photographic plate and after 72 hours there was a strong picture, showing the rays to have penetrated the aluminum and black paper.

In repeated experiments with zirconium it seems to affect a photographic plate in less time than any preparation of thorium I have thus far obtained. It is possible that zirconium may even be shown to be more radioactive than thorium.

Experiment I: A photographic plate was covered with black paper and crystals of yttrium were spread around the object. It required four days to affect the photographic plate.

Experiment II: Some yttrium was placed in an aluminum box and then placed on a covered photographic plate. A definite impression was obtained after 72 hours.

RADIUM

The source of radium is from pitchblend or uraninite after the uranium has been extracted. It comes in hermetically sealed tubes, for it absorbs moisture readily, in the form of radium carbonate in the lower activities, and as radium bromid or chlorid in the higher activities. Pure radium is practically unknown. It has a spectrum of its own and Madam Curie determined its atomic weight as 225. This is the largest atomic weight of any substance known and, therefore, has a very large molecule. It has a spectrum of its own. It has thus fulfilled all the requirements of an element. It belongs to the group of strontium, barium and calcium. It is capable of affecting a photographic plate in the dark at a distance of many inches.

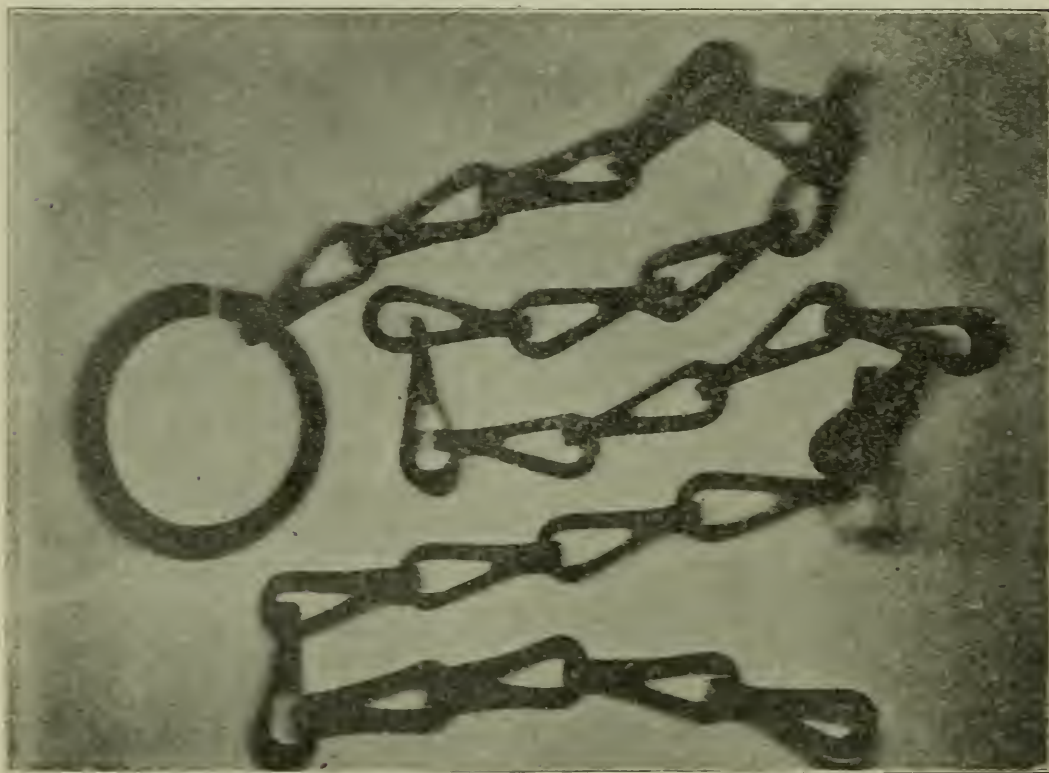


Figure VI RADIUM PICTURE

Suspended tube 15 gr. Radium 40 activity under surface of cigar-box cover. On bottom of box placed chain on bare photographic plate. Time 24 hours.

In Figure VI the chain was placed on the bare photographic plate, which was placed on the bottom of the cigar-box and a tube of radium of 40 activity containing 15 grains was suspended from the under surface of the cigar-box cover. The time was 24 hours.

A tube of radium of 7000 activity containing 20 milligrams was placed on the brass hook, which lay on a photographic plate covered with black paper. The time was 24 hours. In this case the rays have penetrated the brass.

The rays of radium of very high activity are capable of penetrating very dense bodies. In the dark, when placed back of the

ordinary fluoroscope screen, there appears a rather bright area. When placed back of some Willimite it seems as if a light were placed back of a yellow stained window. When brought near a diamond in the dark it causes the same to phosphoresce very brilliantly.

When radium of high activity is placed against the closed eyelid it gives a very peculiar brilliant light. In the dark, radium gives out a phosphorescent light which is very similar to that obtained by rubbing the head of a match with one's fingers in the dark. If one arises at night after the eyes have been relaxed for several hours, and if the room be perfectly dark, one may be able to follow out and read a line of print. Radium emits enough heat to melt its own weight of ice per hour.

The ability of radium to give out both light and heat for an indefinite time without apparently losing any of its weight or power has startled the scientific world, and, as Lord Kelvin said, "Radium has placed the first question-mark back of the law of conservation of energy;" for here there is a kind of perpetual motion, and it is seemingly, as if radium was creating its own energy. But already several observations point to a solution of the problem. However, it is true that no known substance is capable of giving out the same amount of energy without becoming inactive.

First theory: It is that radium has a very large molecule, since its atomic weight is 225, and that these molecules are continuously breaking up into smaller particles, namely into ions or electrons, and it is because of the breaking up of the molecules and thereby changing its form, that radium emits light and heat.

As bearing on this theory, Prof. Crooks constructed an instrument called the "spinthariscopes." This instrument consists of a small X-ray or fluoroscopic screen of platino-barium-cyanide, back of which there is placed a small particle of radium. When you look through a low-powered microscope on this screen, in the dark, there can be seen continuous brilliant flashes on various parts on the screen, which appear very similar to the silvery flashes seen on the screen during a kinetoscopic view. These flashes are interpreted as being due to the ions striking up against the screen.

Second theory: This is one in which it is supposed that radium acts as a transformer and is capable of capturing or absorbing some form of energy and of converting the same into the ultra-violet light and heat.

As bearing on this theory the following may be offered: If zinc sulphid be exposed to the sunlight it becomes phosphorescent

and is capable of affecting a photographic plate in the dark for as long a period as six weeks.

Second—If calcium sulphid is exposed to the sunlight or after it is placed near burning magnesia it will affect a photographic plate in the dark for a long time.

Third—I took some polysulphid of calcium and mixed the same with some varnish and with this I painted the inside of a large test-tube. (This is practically known as luminous paint.) This tube was then exposed to the sunlight which rendered it phosphorescent, and when taken into the dark it gives out sufficient light so that one can read several lines of a newspaper at

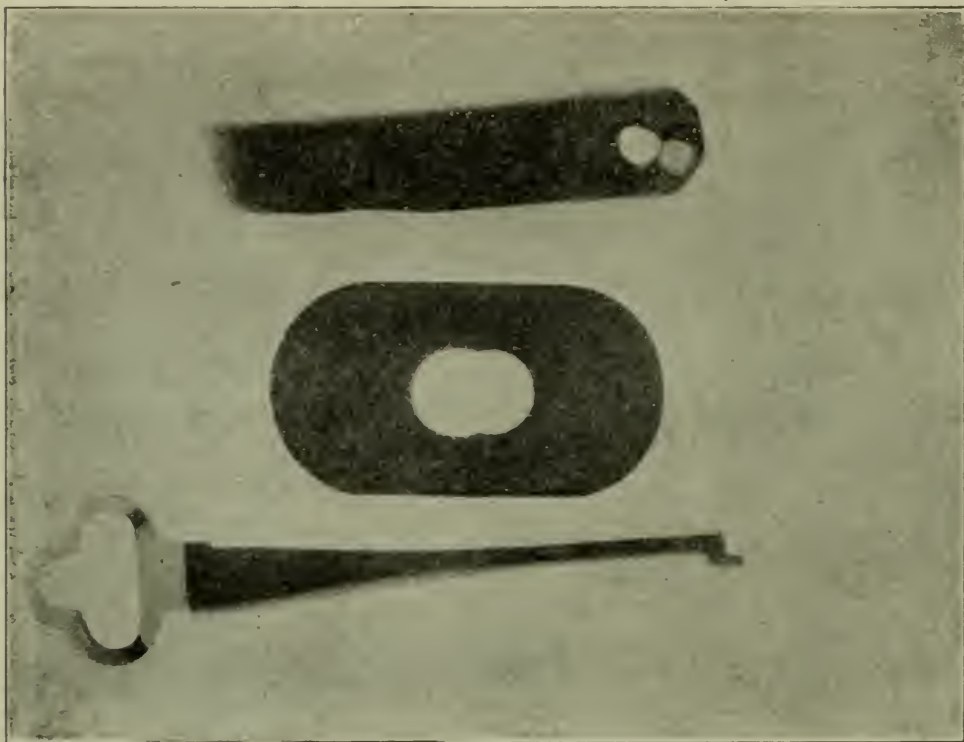


Figure VII.

Test tube painted with polysulphid of calcium rendered phosphorescent by exposure to sunlight, suspended from under surface of cigar-box cover. Bare photographic plate with objects laid on bottom of box. Time seven days. Double image due to moving box after three days.

a time. (Fig. VII.) This tube was then suspended from the under surface of a cigar-box cover, and at the bottom of the box was placed a bare photographic plate on which was laid the three objects, the distance from the tube to the plate being about two inches. The box was wrapped up in paper and laid away in a drawer in the dark-room and remained there for seven days, after which time a very definite outline of the object was obtained. The double outline of the objects is due to the fact that the box was moved on the third day. This tube has been constantly kept in the

dark for six weeks, after which time it affected the photographic plate very actively in five days. Thus we see that these two substances, zinc sulphid and calcium polysulphid, are capable of absorbing some energy from the sunlight, and calcium sulphid of absorbing some energy from either the sun's rays or from the burning magnesia, and that these substances are capable of retaining this energy and of giving the same out slowly for a period of six weeks, during which time they can affect a photographic plate.

INDUCED RADIOACTIVITY

It has been stated that if a sealed tube containing radium of high activity be suspended in a normal salt solution, and solutions containing various drugs, that these solutions become radioactive and were capable of affecting photographic plates.

It has further been intimated that if radium has a therapeutic value, then these solutions which have been rendered radioactive might likewise have a therapeutic action, and since solutions can be taken internally, the possibilities of these radioactive solutions might be of considerable value.

In view of this fact, I conducted a very large series of experiments from which the following negative results have been obtained:

Two tubes of radium of 1,000,000 activity, each containing 5 milligrams, and two other tubes of lesser activity, each containing 50 milligrams, were placed in a normal salt solution and remained there for 10 days.

This solution was placed in test-tubes of very thin glass and in the small vials in which hypodermic tablets are contained. These were then strapped with adhesive plaster on to the film side of photographic plates. Some of the plates had first been covered with black paper.

These tubes remained from a period of 24 hours up to 21 days, and in no case was there the faintest sign that the photographic plates had been affected.

It has been known for a long time that aluminum offers very little resistance to the rays of radium and radioactive substances.

I therefore took many boxes made of very thin aluminum and filled these with so-called radioactive solutions, and placed them on photographic plates, first covered with black paper. But in no instance, even after 10 days, was any image obtained.

Then aluminum boxes were filled with these solutions and placed on the bare photographic plates, and after 40 to 48 hours a very definite outline of the boxes were obtained. Stimulated by this

last observation, which I then considered a correct one, as indicating a result due to the so-called radioactive solutions. I practically completed a series of 96 experiments, from which I made the following inferences, which would be very pleasing if true, but as I will soon show, are incorrect.

1. That a normal salt solution becomes radioactive, as proven by the outline of an aluminum box containing this solution, when this box is placed on a bare photographic plate for 40 to 48 hours.

2. A saturated salt solution becomes more radioactive than a normal salt solution.

3. As the amount of salt in the solution is increased, so is the induced radioactivity.

4. A tube of 10 milligrams of 1,000,000 activity does not induce a greater amount of radioactivity into a salt solution, than does a tube of 20 milligrams of 7,000 activity or a tube of 15 grains of 40 activity. From this it seemed as though a salt solution could be rendered radioactive to a certain degree only.

5. The radioactivity seemed to be just as great after a tube of radium was suspended in a salt solution for 10 hours, as it was after the tube of radium had been kept in the salt solution continuously for three weeks.

6. That a tube of radium could be placed in some salt and if this salt were made into solution, it would retain its radioactivity.

7. That this radioactivity is not lost after several weeks.

If all of these inferences had not been overthrown, and if these radioactive solutions had any therapeutic action, then surely these results would have been of great value, for it would be possible to transport these solutions, or to render substances radioactive, and to apply the same, and again a tube of radium costing a few dollars would accomplish the same result as a tube costing \$250.00.

ALUMINUM

When these aluminum boxes were placed on the photographic plate, they only produced an outline of their rim. This I explained by the fact that they were slightly concave and only affected the plate at the points of contact. It was also noticed, no matter what solutions the boxes contained, that there was always about the same amount of print for the same length of time. I had also noticed that distilled water, when submitted to the tube of radium, produced the same amount of print. This caused me some doubt, for I believed it to be the solids in the solution which became radioactive. When aluminum boxes were filled with these salt solutions and empty ones were placed on the reverse side of the photographic plate, they did not affect the plate after a period of 10 days.

During the entire series no aluminum box had been used more than once, for I soon observed that if a box had contained any of these solutions or any radioactive substance, no matter how much I cleaned or boiled it, the box still affected the photo-

graphic plate; while the steel keys, which had been covered with the various uranium salts, and thorium, if they were cleaned thoroughly, would not affect the photographic plate. These boxes were always kept in a place where I thought them out of the influence of all radioactive substance.

These observations forced me to seek for an error. This action of metallic aluminum on the photographic plates I concluded must be sought for in the boxes themselves.

Then several empty boxes were placed on bare photographic plates and after 48 hours they gave as good prints as if they had been filled with the solutions. I then thought that somehow they might have been rendered radioactive. Then some new boxes were obtained and placed on bare photographic plates, and after 48 hours these also affected the plate, and so did many other new boxes.

The next questions which presented themselves, were:

1. Is the particular product of aluminum, from which these boxes are made, radioactive?

2. Is all aluminum radioactive?

3. Is this action of aluminum on photographic plates due to radioactivity, or some other cause?

4. If this action of aluminum on photographic plates is not due to radioactivity, what then is it due to?

5. What action will aluminum salts have on photographic plates?

Summary: Many aluminum articles were placed on bare photographic plates, and in every instance they produced their own image in 48 to 96 hours.

These same aluminum articles, when placed on photographic plates covered with black paper, did not produce an effect on the plate in 10 days.

These same aluminum articles, when placed on the reverse side of the photographic plate, or when separated from the film by a plate of glass, did not affect the plate in 10 days.

The summary of the experiment of placing aluminum salts, of which there are many, on the bare photographic plate, is that in no instance was the plate at all affected after 10 days.



Figure VIII

An empty aluminum box was placed on the bare photographic plate. Time 60 hours. The box is slightly concave and only gives an outline of the rim where it touches. This action is not one due to radioactivity, but is probably either chemical or electrical.

The inferences to be drawn are:

1. When metallic aluminum is placed on the bare photographic plate in the dark, it will produce its own image.

2. That aluminum will not affect a photographic plate when separated from the film of the plate by black paper, glass, or when placed on the reverse side of the plate. Therefore, aluminum is not radioactive.

This action of metallic aluminum on photographic plates is probably either a chemical action or an electrical action between the metal and the albuminate of silver of the plate.

This observation, that metallic aluminum when placed on the bare photographic plate produces its own image, has heretofore not been pointed out.

Tubes of radium were placed in various powders, as bismuth subnitrate, for several days, and then these powders were placed directly on the film of the plate, and in no instance, even after 10 days, did they show the slightest effect on the plate.

These conclusions give positive proof, that by suspending tubes of radium of varying strengths for long periods in various solutions and various powders, that neither the solutions nor the powders are capable of affecting photographic plates.

Nor was it possible to show the supposed induced radioactivity by means of an electroscope.

Radium-therapy is a word I chose to suggest some months ago as signifying the application of the radium rays in the treatment of diseases, in counterdistinction of the word radiotherapy which signifies the application of the X-rays in the treatment of disease.

There has never been a discovery but has been heralded as a panacea or cure-all, and already the radium rays are supposed to have accomplished wonders, especially in the cure of cancers and consumption. I have canvassed the subject thoroughly, collected all the published literature from medical magazines to date, and written to many who have reported cases of cure, and I must say that, up to the present time, there are but few cases reported by thoroughly reliable observers, wherein the radium rays have shown a beneficial action. Furthermore, it is far too early to draw any inferences, though it does seem as if these rays do exert some influence in lupus and epithelioma, but, in cases of deep-seated cancer, it is not possible to apply the rays without affecting all of the tissues, through which the rays must pass.

It has been proclaimed that the radium rays are life-giving. Now my inferences are quite the opposite, namely, that it is a

death-producing agent to all living cells, either animal or plant, if applied in sufficient strength and for a long enough time, and its value in medicine is the hope that it may destroy the life of simpler cells of germs or of cancer before destroying the healthy cells of the body, thus leaving the healthy body-cells to regain themselves.

That healthy cells of the body may be destroyed is proven by the already frequent observation that when radium is applied to the healthy skin for a considerable length of time, it will produce an irritation, which may result in an ulcer requiring months to heal. I have seen such a scar in a physician, who had placed a tube of radium in an aluminum box and fastened the same to his forearm for three hours. The experiment was made over two years ago, and at the present time there remains a red irritated area, on which the hair no longer grows, and in many respects it acts like some vaccination scars.

There are some reliable reports showing that radium has retarded certain growths of bacteria. Prof. Curie introduced a few milligrams of radium under the skin of a mouse near the vertebral column and it produced death by paralysis in three hours. He also placed tubes of radium of high activity on the backs of guinea-pigs, which were either paralyzed or died of paralysis in a few hours. This seems to indicate that the radium rays have an action on the nerves.

The obtaining of definite knowledge as to the therapeutic effect of radium will be very slow in forthcoming owing to the present rarity of the element and the great cost of the same, and the time which must necessarily elapse before a malignant growth can be pronounced as cured.

It was thought that radium might be used similar to the X-rays in obtaining skiagraphs of the bones, but the rays of radium penetrate the bone quite as easily as they do the flesh, and it requires at least 24 hours, using a tube of radium of high activity, to obtain an outline of the bones, during which time the rays will have caused a very severe irritation of the exposed area.

Thorium, being a very radioactive substance, might have some value in either medicine or surgery, for it is a nice, clean, white, stable chemical, and it is possible that it might be added to our list of drugs.

The toxicity of this substance, as determined on animals, as well as the clinical findings of the same, with those of radium, will be published later.

As this article goes to print, I wish to state briefly the his-

tory of a case of lupus which I am treating with radium and which seems to be healing.

Mrs D——, age 57, had a beginning lupus 16 months ago. Under the applications of the X-rays it improved. Then the eye itself became involved to such an extent that it was necessary to remove it eight months ago. While the wound from the operation was healing the X-rays had to be discontinued for a period of six weeks, during which time the disease spread. Further application of the X-rays caused the center to heal, while the ulcerated area spread at the periphery.

The patient was referred to me April 7. At this time there was a round healed area $2\frac{1}{2}$ centimeters in diameter. Around this was an ulcerated rim varying in width from one to one and a half centimeters and extending from the outer corner of the eye to within $2\frac{1}{2}$ centimeters of the ear and well down on the cheek. The entire area was deeply congested.

I applied a tube of radium of 7000 activity and two tubes of 40. activity, for 35 minutes every three days. After the second treatment much of the congestion disappeared and the edges, as well as the base, took on a better appearance, and much of the deep-seated pain had left.

The improvement was very rapid, and now after 21 days there is a new, healthy looking skin covering the entire ulcerated area excepting a few small places. The internal pain has left entirely; and nearly all the congestion has disappeared.

This case may be considered as practically healed, but many months must elapse in order to see whether the deep-seated germs will not assert themselves again, before the case can be pronounced as cured.

1220 Willson Avenue

NOTE—The author earnestly solicits all monographs and articles on this subject and will appreciate any that may be received.

Epidemics of Typhoid Fever in Cleveland

BY H. E. HANDERSON, M. D., CLEVELAND

The few remarks submitted to the Academy in this brief review tonight are based entirely upon data furnished by the health office, for which I am indebted to the courtesy of Mr Combes, secretary of the Board of Health. The figures cover the record of the last 30 years and are interesting and suggestive.

The record begins with a sharp epidemic of typhoid in 1873, which occasioned in a population of 113,000 a total mortality

of 120, or 106 to each 100,000 inhabitants. The Lake water was introduced into Cleveland in 1856, but I have no trustworthy information as to how generally it was used by our citizens in 1873, nor, of course, how far this early epidemic of typhoid could justly be ascribed to such use.

No equally severe epidemic of typhoid fever has ravaged the city since that date until last year (1903), when the mortality from this disease reached the high figures of 112 to each 100,000 of the population. Severe mortalities, however, are recorded in 1874 (74 per 100,000), 1881 (99 per 100,000), 1889 (74 per 100,000) and 1890 (70 per 100,000). Excluding the year 1903, the highest mortality from typhoid recorded during this period of 30 years (1873 to 1902, both inclusive) was 106 (1873); the lowest was 21 (1887), and the average mortality for the entire period was 48 for each 100,000 of our population.

Of course the longer the periods compared the less the probability of misinterpretation. The mean mortality of the first 15 years (1873-1887) was 56.1 per 100,000; for the second (1888-1902), 43.2. The difference 12.9 is a reduction of about 23%.

Dividing the period in accordance with the decades of the Census Bureau, the average annual mortality from typhoid fever during the last seven years of the eighth decade of the nineteenth century (1873-1879) was 60 per 100,000, during the ninth decade (1880-1889) it was 58 per 100,000, and during the tenth decade (1890-1899) it was 42 per 100,000 inhabitants. Still further, during the first three years of the current decade (1900-1902) this average mortality declined to 40 per 100,000 of our population. It is encouraging to note the sharp decline in the mortality during the last 13 years.

The outbreak of the disease in 1903 was sudden and almost sensational in its appearance. The mortality for the preceding year (1902) had been very moderate, 133, or 33 per 100,000, and the month of December, 1902, furnished a total of eight deaths only from this disease. Without the slightest warning, the mortality of January, 1903, from typhoid fever, jumped to 32, and the ravages of the disease in the succeeding months of the year are shown in the following table:

February	23	August	42
March	55	September	40
April	66	October	22
May	51	November	20
June	39	December	28
July	54		

a total mortality of 472 in 12 months, and establishing for the year the startling death-rate of 112 per 100,000 inhabitants.

Nor was the suddenness of the outbreak its only peculiarity. The extent of its diffusion was equally remarkable. The eight deaths of December, 1902, had been distributed among six of the 42 old wards of the city. The mortality of January, 1903, involved no less than 17 of the 26 wards into which the city was newly divided, or about two-thirds of the entire city, and at the acme of the epidemic in April, *every* ward of the city was represented in the monthly mortality, except the sixteenth. Strangely enough, too, during April and May (the summit of the monthly mortality curve) the sixteenth ward displayed not a single death from typhoid fever, although it suffered its proportionate share from this disease both earlier and later in the year. This suddenness of attack and capriciousness of distribution are quite remarkable.

The same characteristics appear in the continuation of the epidemic into the present year. In January only 12 deaths from typhoid were reported, which were distributed through seven wards of the city. It seemed reasonable to anticipate that the end of the epidemic was at hand, yet February displayed a mortality of 45, distributed through 22 of the 26 wards, and dispelled the cheering hopes awakened by the moderate mortality of the preceding month. Apparently the end is not yet.

The facts thus submitted may be easily demonstrated from the figures of the health reports. The conclusions to be drawn from them are, perhaps, not so obvious and indisputable. One conclusion, however, seems reasonably certain. The mortality rate from typhoid fever during the last 30 years has decreased about one-third in spite of a constantly increasing sewage-pollution of the neighboring waters of the Lake.

Accepting the theory that typhoid is usually a water-borne disease, the history of the disease in Cleveland would seem to point to a water-supply always more or less infected, but subject to irregular attacks of acute and severe infection with the typhoid poison. Hence a moderately high *average* mortality from typhoid fever, interrupted by sharp epidemics of greater or less severity and duration, was noted.

The general improvement of our water-supply, with the cause, mechanism and means of prevention of these acute attacks of infection, are the problems before us.

The Character of the Widal Reaction in the Present Epidemic of Typhoid Fever

BY L. W. LADD, M. D., CLEVELAND

Lecturer in Clinical Microscopy, Western Reserve University

Before discussing the Widal reaction of the present epidemic in Cleveland it will be well, perhaps, to give a brief account of the nature of the Widal reaction and of its importance as a diagnostic test in typhoid fever.

In 1894 R. Pfeiffer first discovered that the blood-serum of animals immunized to typhoid fever, when placed in the abdominal cavity of a previously healthy experimental animal, together with an amount of typhoid culture previously determined fatal to an animal of similar size and kind, not only protected that animal against the action of the bacilli but also induced granular degeneration of the bacilli and finally their complete solution.

In 1896, Pfeiffer and Kolle, and independently Gruber and Durham, found that the blood-serum of human beings recently recovered from typhoid fever when mixed with an actively motile culture of typhoid bacilli soon rendered these immobile and caused their clumping together, that is, their agglutination. This was the first time that the reaction was used as a diagnostic measure.

Widal later, in the same year, elaborated the method and showed that the serum of typhoid patients not only exhibited the same agglutinating influence upon the bacillus typhosus after recovery from typhoid fever, but also at the beginning and at the height of the disease.

Numerous workers then took up the study of this phenomenon with the result that the following facts were soon established:

1. That the reaction may occur in 1 to 10 and stronger dilution in health and during the onset of numerous other acute infectious diseases besides typhoid fever.

2. That it is extremely rare when the reaction occurs in dilution of 1 to 20 in other conditions than typhoid fever and that almost never does it occur in dilutions of 1 to 40 or 1 to 50, and above, in other conditions than an existing or past typhoid fever.

3. That the reaction was obtained by Widal and others in dilutions of 1 to 1000 and 1 to 5000, and in one case reported by Widal in which the reaction was positive in dilution of 1 to 20,000.

4. That occasionally, cases clinically typhoid fever fail to give the reaction during their illness, even though in some of these

cases the typhoid bacilli can be obtained from the blood during life and in other cases at postmortem.

5. That not for a positive reaction only is agglutination necessary, but also complete cessation of motility in at least 1 to 40 dilution within a time limit of one hour.

6. That competent authorities have obtained the reaction in series of several thousand cases clinically typhoid fever at some time during the course of the disease in from slightly below 90% to 95% of all cases.

7. That in a series of 2500 cases, not typhoid, the reaction was positive in 2% of all cases.

8. That the reaction in mild cases may disappear even before convalescence is established.

9. That the reaction usually persists after convalescence is established from several weeks to several months with instances in which it has persisted 20 and 30 years after the attack.

10. That in order to determine the exact date upon which the reaction becomes positive, frequent examinations during the course of the disease may be necessary.

11. Absence of agglutination during the first or second week of the disease is no evidence against the existence of typhoid fever inasmuch as the reaction may not be positive until the end of the second month.

As regards the day of illness upon which the reaction is positive, Park, in a large series of cases, has furnished the following data:

Positive in first week 20% of cases.

Positive in second week 60% of cases.

Positive in third week 80% of cases.

Positive in fourth week 90% of cases.

Positive in two months 75% of cases.

At Lakeside Hospital from January 1, 1903, to March 1, 1904, 454 cases of undoubted typhoid fever were admitted, exclusive of some 60 cases admitted to the Private-Ward Service, and exclusive of quite a number of cases probably typhoid fever, though the physical signs and symptoms were not sufficiently conclusive to warrant my including them in this report in the absence of a positive Widal reaction.

The date of onset of the typhoid fever has in all cases been made from the earliest time when some physical sign or symptom was sufficiently prominent to justify the probable onset of the disease.

I have compiled a statistic report of the total cases admitted during 14 months, and also for each individual month, in order that to show that there has been a definite change in the character of the Widal reaction during the past six months as compared with the preceding eight months.

In performing the reaction the following regulations were observed:

1. Complete loss of motility and clumping inside of one hour, with a dilution of 1 to 20 and 1 to 50, were necessary before the serum was said to be positive.

2. Those giving a positive result in dilution of 1 to 20 and a partial reaction 1 to 50 were considered suggestive.

3. Those never giving a reaction 1 to 20 or 1 to 50 were considered negative.

4. Cases admitted after the fourteenth day with a positive reaction on admittance were disregarded in compiling this report, as there were no means of knowing when the blood first became positive.

5. Only those cases which developed positive Widal reaction in the hospital or were admitted with positive Widal before the end of the week were considered.

6. Upon those admitted with negative Widal reaction the test was performed every third or fifth day during the course of the disease until the reaction was positive, provided it became so at any time.

The following points were determined for each month of the fourteen:

1. Number of cases.

2. Earliest date upon which the Widal reaction was positive.

3. Latest date upon which the Widal reaction was positive.

4. The average day of illness upon which a positive reaction was obtained.

5. The number of cases which gave only suggestive reactions.

6. The number of cases which gave no reaction at any time.

7. The number of cases which gave a positive reaction 1 to 20 and 1 to 50.

8. The percentage of cases not positive 1 to 20 and 1 to 50.

9. The number of cases admitted before the end of the second week.

10. The number of cases admitted before the end of the second week which gave positive Widal reactions.

11. The percentage of cases giving a positive Widal reaction before the end of the second week.

12. The number of cases admitted in the first week.

13. The number of cases giving positive Widal reactions in the first week.

14. The percentage of positive Widal reactions in the first week.

15. The percentage of cases during the last six months which did not give a positive reaction.

16. The percentage of cases during the preceding eight months which did not give a positive reaction.

17. The percentage of cases during the past six months which gave a suggestive reaction.

18. The percentage of cases during the preceding eight months which gave a suggestive reaction.

19. The percentage of cases during the last six months which never gave any reaction.

20. The percentage of cases during the preceding eight months which never gave any reaction.

SUMMARY—GENERAL, FOR THE 14 MONTHS

Of these 454 cases 13% did not give positive Widal reactions in dilution of 1 to 50.

10.8% gave suggestive reactions, that is, positive 1 to 20, but not 1 to 50; 2.4% gave absolutely negative results; 86.7% gave positive reactions 1 to 20 and 1 to 50.

The earliest day of illness on which the reaction was obtained was the third, and the latest day of illness on which it was obtained was the fifty-fourth.

Of the 454 cases, 405 were admitted before the end of the second week; 68% gave positive reactions 1 to 20 and 1 to 50 before end of second week. Of the 454 cases, 207 were admitted before the end of the first week; 41% of these gave positive reactions before the end of the first week; 7.5% of the cases admitted during the past six months gave positive reactions before the end of the first week; 46% of the cases admitted in the eight months preceding gave positive reactions in the first week; 58% of the cases admitted in the past six months gave positive reactions before the end of the second week; 71% of the cases admitted during the eight months preceding gave positive reactions before the end of the second week; 15.6% of the cases admitted during the past six months did not give positive reactions 1 to 50; 12.5% of cases admitted in the eight months preceding did not give positive reactions 1 to 50; 11.4% of the cases during the past six months gave suggestive reactions; 10.6% of the cases admitted during the preceding eight months gave suggestive reactions; 4.1% of the cases admitted during the past six months never gave any reaction; 1.9% of the cases admitted during the eight months preceding gave no reaction.

These figures show that the Widal reaction was distinctly delayed in its appearance during the past six months; that it was less often positive in this period of time than was the case previously and that there were more anomalous cases than was the case previously. I wish to thank Dr T. W. Clarke and Dr John Phillips, of Lakeside Hospital, for the aid which they so kindly gave me in making this report.

The Water-Supply of Cleveland, Past, Present and Future

BY WILLIAM T. HOWARD, JR., M. D., CLEVELAND

It is to be supposed that the early Clevelanders derived their water-supply first from springs and wells and later from the Cuyahoga River. I am informed that the first water-works were established in 1857, and that the intake was not over 500 feet from the shore of the Lake. In 1874 a five-foot tunnel was completed and an intake established at a distance of one and a quarter miles from the shore. In 1891 a second tunnel was completed to the same intake, so it may be said that for 30 years our water-supply has been derived one and a quarter miles from the shore, at the west side of the harbor.

For the test of the purity of this supply I refer you to the statistics on the incidence of typhoid fever, as shown in Dr Handerson's paper.

There is evidence that many Clevelanders have not been satisfied with the water-supply for a number of years, and appreciated its danger; but in all efforts at its improvement haste was made slowly.

It is difficult to ascertain who made the first studies by laboratory methods to determine the impurity of the water-supply. Chemical analyses, at least, have been made at Case School for years, and in the reports of the water-works department for 1894 I find analyses, made by H. L. Payne, chemist, of water from different points in Lake Erie, and he states that "the further from shore we go, the better is the water."

In 1895 "a Commission of three sanitary experts was appointed to act with the City Engineer and the Superintendent of Water-Works and report on the best available method of sewage disposal and water-supply systems for this City."

As the result of the work of this Commission, who studied the currents of the Lake, and made analyses—chiefly chemical—of the water at various points, the new tunnel and a system of intercepting sewers (as yet incomplete) were started. This new tunnel has been in use for about a month, and the new sewage system may not be completed for five years, so that 15 years after it was given we may have the opportunity, if all goes well, of testing the advice of the water Commission.

The sources of pollution of our water-supply are from the Cuyahoga River, the City's sewers emptying along the Lake front,

the surface drainage, as well as the sewage of the whole population along the Lake shore, and its tributary rivers, as well as that from the shipping.

It is generally admitted by water analysts that neither bacteriologic nor chemical analyses alone are to be depended upon in forming a correct opinion of the purity of a given water. Two exceptions can be taken to this rule—first, the isolation by bacteriologic methods of the typhoid bacillus, and, second, the finding of large numbers of colon bacilli under conditions which make it fairly certain that contamination from cattle and other lower animals can be eliminated.

As far as I know, no systematic study has been made of our water-supply by the simultaneous use of chemical and bacteriologic methods.

During the spring, summer and autumn months of 1902, bacteriologic examinations were made in the City Bacteriologic Laboratory of the water near the new intake (Crib III) and out of 13 examinations the colon bacillus was isolated four times—once in April and three times in July. Water taken 200 yards north of the new intake examined on 10 occasions during this period showed the colon bacillus four times—three times in July and once in August. On September 5, 1902, when there was a case of typhoid fever on the crib, the typhoid bacillus was cultivated from the neighboring water. The discharge into the water of the garbage and sewage of a variable number of men working on this crib during the period of these observations robs them of value for practical deductions at the present time. As far as I can learn no chemical tests were made of this water.

During the year 1902, the food inspector made monthly chemical analyses of water drawn from a City Hall tap, and found an excess of organic matter at various times. No bacteriologic studies were made of the water supplied the City during this time.

There is abundant evidence that the water from the old intake has been subjected to sewage contamination for years. The large number of cases of typhoid fever which have occurred from time to time is convincing proof of this. As long ago as 1896 Dr A. P. Ohlmacher found the colon bacillus in the City water, and one of his pupils isolated the typhoid bacillus from it on one occasion.

The colon bacillus has been isolated from the same water at various times by different workers in the bacteriologic laboratory of Western Reserve University. It is reported that observations carried on in the chemical laboratory of Case School over a series of years demonstrate that the percentage of chlorin in this water

shows a steady increase, but I have not this statement directly from the director of the chemical laboratory.

The first systematic bacteriologic examinations of the water from the City water-supply (tap water), of which I am aware, were undertaken by the City Bacteriologic Laboratory, under my charge, and extend over the period from March 2, 1902, to February 11, 1904. As a general rule these examinations were made at intervals of two weeks, but on two occasions two tests were made the same day, in January three tests fell between the twentieth and twenty-fifth, and there were three tests made between February 3 and 11. In a total of 20 examinations of water from the tap in the laboratory the colon bacillus was found in 12, and on five other occasions after the inoculation of this water into fermentation tubes containing dextrose bouillon; gas was formed, though subcultures failed to establish the presence of the colon bacillus. In the seven examinations made between January 6 and February 11, 1904, the colon bacillus was isolated every time.

The colony counts during the period from March 2, 1903, to February 11, 1904, varied greatly—from 11,200 per cubic centimeter on March 2 to 90 on August 5 in cultures grown at room temperature. In seven bacteriologic examinations made during the period from August 12, 1903, to February 18, 1904, from water obtained at the Division Street Pumping-Station (water from old intake) the colon bacillus was demonstrated in six. The remaining sample caused fermentation of dextrose, but the colon bacillus was not isolated, though presumably present. It is of considerable interest for comparison with the foregoing that in seven samples of water from the Fairmount Street Reservoir (where there is an opportunity for sedimentation and the so-called natural purification) between September 24, 1903, and February 19, 1904, the colon bacillus was found but twice.

Last spring, at the request of the Health Officer, and by arrangement with the Superintendent of the Water-Works department, the City Bacteriologic Laboratory undertook bacteriologic examinations of water from two places in Lake Erie, with the intent of gathering information concerning the probable condition of the future water-supply through the new intake, on the completion of the tunnel and new pumping-station.

These observations extended from April 20 to December 3, 1904, and are divided into two periods, (1) from April 20 to August, during which time the garbage and sewage of some 50 workmen on crib 3 (the new intake) were being discharged into the surrounding water, and (2) from August to December, after

the workmen had left the crib. During the first period, when there was, of course, contamination of the water at the crib, samples were taken at the surface and 10 feet below the surface of the Lake at a point two miles north of the crib. During the second period, when this source of contamination was at an end, the samples were obtained 1,000 yards north of the crib.

In eight examinations of the surface water during the first period, the colon bacillus was isolated on two occasions (July 16 and 29) and the colony counts at room temperature varied from 710 to 60 per cubic centimeter. In the eight samples as taken 10 feet below the surface, the colon bacillus was found three times (April 20, July 16 and 29).

In the seven surface samples (taken 1,000 yards north of the crib) examined in the second period at intervals of two weeks, the colon bacillus was found twice (August 13 and 27). In six samples taken 10 feet below the surface the colon bacillus was found but once (August 13).

The colony counts in the surface samples varied from 216 to 10 per cubic centimeter, while those from the deep samples were also uniformly small except on one occasion, when they numbered 2,000; this was interpreted as due to possible but unexplained contamination.

Samples of water taken November 16 from two miles north of the new crib showed no colon bacillus, but a bacillus of the colon-typhoid group, classed as possible paratyphoid, was obtained from the surface sample. Cultures made the same day from water taken near the new crib failed to show the colon bacillus or any allied organisms.

The department unfortunately having no chemist, chemical analyses of these waters were not made.

In the absence of complementary chemical tests, it is not possible to draw satisfactory deductions from these observations. The presence or absence of organic matter as shown by chemical tests would have given the further evidence necessary for basing definite conclusions. Sanitarians would hardly regard the presence of the colon bacillus in the water two miles north of the new crib on two out of eight examinations of surface water and in three of the same number of examinations of deep water as sufficient to condemn permanently these waters when the garbage and sewage of 50 men in the crib were being discharged into the Lake. Thus far, then, the only bacteriologic examinations from which conclusions may be properly drawn are those made during the second period from water 1,000 yards north of the new crib, in

which the colon bacillus was found twice in seven examinations of surface, and once in six examinations of deep water, and from the one negative examination of water taken from near the new crib on November 16.

Being unsupported by complementary chemical tests, it is impossible to say whether the colon bacilli found were from the City sewers, from sewage dumped into the Lake, from passing ships, or from gulls. These observations cover only the so-called open season, and throw no light upon the condition of the water at these points when the Lake is covered with ice.

From February 6 to March 9, 1904, seven examinations have been made in the City Bacteriologic Laboratory, of water drawn at the new Kirtland Street Pumping-Station. The colon bacillus was found in five samples and not found in two (March 5 and 9). The colony count has fallen from 4,300 per cubic centimeter on February 6 to 130 on March 5. In the last observation (March 9) no organisms grew in plates inoculated with .2 of a cubic centimeter. There was a growth in the fermentation tube inoculated with four cubic centimeters of water, but no gas was formed; subcultures were negative for the colon bacillus.

I do not see how it is possible to decide whether the contamination of these samples was due to the accumulated filth in the tunnel or to the presence of sewage in the water before it entered the tunnel. It may be well to state here that the presence of the colon bacillus in water is the commonly accepted bacteriologic evidence of sewage contamination. It is not necessarily, however, positive proof that the contamination comes from human beings, for this bacillus may also come from the alimentary tract of certain animals and even from birds.

It is the rule in the City Bacteriologic Laboratory to state that the colon bacillus is present in water only when it is actually isolated and identified by standard cultural tests.

I am permitted by Dr L. W. Ladd to state that during February, 1904, he succeeded in cultivating not only the colon bacillus but the typhoid bacillus from water drawn from his laboratory tap.

In conclusion it may be said (1) that there is convincing evidence that the water from our old intake has been contaminated for years with sewage and is now so contaminated and is dangerous; and (2) that the water from the new Kirtland Street Station showed such contamination up to February 25, 1904.

Looking to the future, there are no past observations which in any way tend to prove that the water-supply from the new intake will be free from sewage contamination the year round. The

amount of the possible contamination may be studied in two ways, (1) the inhuman and uncivilized method of counting the number of deaths from water-borne diseases—notably typhoid and allied fevers, and (2) the civilized method—by the thorough study of the problem from all standpoints by the use of modern scientific means by a competent water Commission.

The Intercepting Sewer

BY WILLIAM J. CARTER, CITY ENGINEER, CLEVELAND

During 1895 the questions of water-supply, sewage disposal and river purification were discussed, and the Council passed a resolution June 24, 1895, appointing a committee to study the situation and formulate a report. This Commission consisted of Messrs Rudolph Hering, Desmond Fitzgerald and George H. Benzenberg, men particularly fitted to make such a report. The work now under construction is all in conformity with the report of the above Commission. The system as outlined in this report consists of a sewer extending from the westerly City limits to the easterly limits, through Glenville and Collinwood with an outlet into the Lake at Adams avenue in Collinwood, varying in size from five feet at Highland avenue to 13 feet 6 inches at Adams avenue. This sewer will receive the sewage from all the sewers now leading into the Lake, the storm water, however, going into the Lake through the old sewers. The large natural drainage areas are Walworth Run, Morgan Run, Kingsbury Run and Doan Valley. In order to intercept the sewage tributary to these various Runs, branch interceptors will be constructed and connected with the main interceptor. All territory not tributary to this system by gravity flow, as the Flats or River district, will have to be elevated by pumps or ejectors into the intercepting system of sewers, thus bringing all of the sewage to one common point. The present scheme of outlet consists in building two large screening chambers at the shore end of the main interceptor, collecting all floating or solid matter and leading the effluent out into the Lake by means of submerged pipes. The outlet is to be at a point where a depth of from 35 to 40 feet of water is obtained, which point is in the neighborhood of a mile from shore.

The investigation made by the Commission was very thorough, exhaustive current observations were made by means of floats, both surface and submerged, and it was found that a general easterly current prevailed, so that by locating the sewage outlet to

the eastward of the water intake, and having about 10 miles of water intervening, the possibility of contamination would be reduced to a minimum.

In order to secure early relief from contamination, a temporary outlet has been built at Marquette street, so that by completing the portion of the main interceptor between Gordon avenue and Water street, and between Muirson and Marquette streets, it will be possible to deliver the sewage now flowing into the Lake at Waverly avenue to Marquette street.

The territory adjacent to the River has no general system of sewers, each industry having its individual connection direct with the River. It will be necessary to connect all of this sewage by means of proper sewers and elevate the same to the intercepting system, thus freeing the River of considerable contamination.

There remains one class of territory that must be treated by itself. I refer to those parts of the City having no sewers and therefore depending upon cesspools. Sewage as found in our sewers may be looked upon as dirty water. Men work in the sewers and suffer no ill consequences. The velocity of the flow is such that it takes at the most only a few hours for the sewage to reach the outlet, so that no putrefaction or decomposition takes place. Should a stoppage occur, putrefaction would take place in the sewer. The filth collected from these cesspools, however, is the concentrated essence of sewage in all stages of decomposition. This filth is collected, emptied into a scow, towed out into the Lake and dumped in doses of about 75 cubic yards each. It is only a few years since the fish offal from our large fish industries was also towed out into the Lake and dumped. This has been stopped. Now, instead of throwing this refuse away, it is put through a digester, reduced and the fish oil reclaimed. The balance, completely deodorized, is used as a fertilizer. The process is entirely enclosed, all odors are absorbed, and no nuisance whatever is caused. A test run was made with night soil and the results were just as satisfactory.

The outlying districts will always be dependent upon the use of cesspools, so that a sanitary disposition of this waste is an absolute necessity. The same process of reduction is perfectly applicable to garbage disposal and nothing is lost, all oil being reclaimed, and the resultant product being most valuable as a fertilizer on account of its ready solution by water. When a proper and practicable scheme is designed for concentrating our sewage, it will be possible to reclaim the valuable elements and return the same to the soil where they can do some good.

A large city is an immense impoverisher of the surrounding country. All that is produced by the soil is consumed by the City, and instead of the wastes being returned to the soil, they are destroyed.

According to a fundamental law of Nature, matter cannot be created or destroyed, but its form and composition can be changed. We not only change its form, but take particular care to dispose of it in such a way that no future benefit can be derived from the same, and are therefore cheating Nature in her effort to provide for mankind. Let us change our tactics and assist her.

The Ohio State Pediatric Society

The Ohio Pediatric Society will hold its tenth annual meeting at the Hollenden, Cleveland, on May 16 and 17. E. W. Mitchell, of Cincinnati, is President this year, and William Clark, of Cleveland, Secretary. The officers, together with a local committee of arrangements, are preparing an attractive program for instruction and entertainment.

W. S. Christopher, of Chicago, will deliver a lecture on "Types of Children." The following is a preliminary list of papers:

Stewart L. McCurdy, Pittsburgh, Pa., "Symptoms of Bone and Joint Diseases, frequently confounded with Acute Diseases of Children." S. W. Kelly, of Cleveland, is to open the discussion.

Gilbert L. Bailey, Cincinnati, "The Surgical Treatment of Contractions and Deformities Following Infantile Paralysis."

H. H. Jacobs, Akron, "Drug Peculiarities of Children."

C. L. Patterson, Dayton, "Madam Cow."

Edward F. Cushing, Cleveland, "Stomatitis in Impetigo Contagiosa."

Robert A. Biechele, Canton, subject to be announced.

J. S. Hanson, Sandusky, "Hygiene in Maternity."

J. Morton Howell, Dayton, "Physiologic Therapeutics *vs.* Drugs in the Treatment of the Diseases of Infancy and Childhood."

J. B. Koifron, Cleveland, reports of some cases of Marasmus, exact title not given.

Andrew Timberman, Columbus, "The Treatment of Strabismus in Children."

Hugh F. Lorimer, Jamestown, "The Early Recognition of Hip-Joint Disease." Albert H. Freiberg, Cincinnati, will open the discussion.

A. Ravogli, Cincinnati, "Management of Congenital Syphilis in Children."

J. M. Dunham, Columbus, "Typhoid in Infancy and Early Childhood."

D. S. Hanson, Cleveland, "A Year's Observation on Convulsions of Children."

Frank W. Louis, Glendale, "Acute Lacunar Tonsillitis."

J. H. Lowman, Cleveland, title announced later.

Darlington J. Snyder, Columbus, "The Therapeutic Interpretation of the Moods of Babies."

J. J. Thomas, Cleveland, "Feeding in Difficult Cases."

The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and
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EDITORIAL

Cleveland's Municipal Water-Supply

According to Dr Handerson's study, which appears in full in this issue of the JOURNAL, the typhoid mortality of Cleveland has averaged nearly 50 per 100,000 of the city's population for the 30 years since the opening of the Health Office. These figures indicate how great has been the need of an improved water-supply for Cleveland. From the experience of other cities it is certain that an improvement of any account in the character of the municipal water shows at once in a diminution of the number of cases of and deaths from typhoid fever. It is, therefore, presumably true that the water from the new intake will give a lower typhoid mortality, and that conditions will be still better when the city mains and the new tunnel are thoroughly cleaned out.

While the exact character of the water at the new intake is unknown, a consideration of the typhoid mortalities of other cities along the Great Lakes, to be given later, may incline us to the opinion that a moderate pollution is to be expected at all times. Further, in the sand from the bottom of the Lake near Cleveland it is probable that bacterial evidence of sewage pollution could be found if any search was made for it, since the colon bacillus has

been isolated from similar sand taken from the Lake near Buffalo at a point where contamination by Buffalo's sewage was considered impossible. The water from the new intake, therefore, may become dangerous in times of storm and flood.

From the statements of the Superintendent of the Cleveland Water Works, the accuracy of which we are in no position to question, it appears that the city, even in the high-service sections, will soon be supplied in times of normal consumption with the water from the new intake. The stated capacity of the present pumps for the new intake is 80,000,000 gallons daily. At one time of excessive use, the city has been obliged to pump 96,000,000 gallons for a single day's consumption, and, at another time, an average of more than 90,000,000 gallons for five days. This extra consumption can be compensated for by increasing the work of the pumps between 15 and 20%, and, to some extent, by taking more than the usual amount of water from reservoirs. It is in the time of greatest consumption that the water is most likely to be contaminated, and the city, having no limit of safety, would be compelled to pump from the old intake should one of the pumps be out of order at such a time. All these statements are presumably true for the past, and as the demand for water increases with the growth of the city, the condition will become more serious unless the present pumpage is distinctly increased.

THE ORIGIN OF TYPHOID INFECTION

It is quite evident that the cases of typhoid fever in any city may be divided into two classes, those arising from the use of the city water, and those arising from other causes. Examples of infection not due to municipal water are found in those cases introduced into a city from other places, those which are the result of direct infection from case to case, those which arise from eating infected shell-fish, from the use of infected milk, etc. It will be noted that most of the cases of the second class are presumably due primarily to an infection of water, but not necessarily to that of the city in which the case occurs. If it is possible for a municipality to supply its people with an unpolluted water it must be held fully responsible, as having neglected one of its primary duties, the safety of its citizens, for cases of the first class. The protection of its people from causes of infection of the second class is a very much more difficult matter for a municipality than to furnish safe water, and a small death-rate from typhoid fever is to be considered unavoidable for the present throughout the world. What this small and presumably unavoidable mortality is,

is a question of greatest importance, and at the same time one which cannot be answered with certainty. A consideration of the character of the municipal water-supply and the typhoid mortality in various places may throw some light upon the subject. Ten European cities, the smallest Stockholm, having a population of 267,100, and the largest, Berlin, having a population of 1,695,313, had a typhoid mortality in 1896 which ranged from 3 to 8 per 100,000 of the population. They had an average mortality of 5.1 per 100,000. Seven of these cities filter their water, three go long distances, usually into the mountains, for pure sources. For the majority they begin, as would Cleveland in case no sewage was deposited in the Lakes, with a relatively uncontaminated source. Rivers are, on the whole, quite difficult to keep free from pollution, yet four of these cities use filtered river water, in whole or in part. The Elbe river was greatly polluted, yet its water is filtered and used by Dresden with a resulting mortality of four, and by Hamburg, with a mortality of six per 100,000. Amsterdam filters the water of the river Vecht; its mortality is three per 100,000. Breslau filters the water of the river Oder, with a mortality of but eight per 100,000.

The cities Rotterdam, Altona, Brussels and Christiania have a typhoid mortality of 12, 13, 18 and 33 per 100,000. The average mortality is 19. The first and second filter the water of the rivers Maas and Elbe less efficiently than Hamburg does that of the latter, the source of supply of the other cities is not stated in the work from which we have secured our information. It would seem that the greatest difference between these cities and the ones first given must be in the municipal water-supply rather than in their supervision of articles of food and drink, since they are subject to the same governmental regulations as the cities in the first list.

The average typhoid mortality in the years 1898 to 1901 of 132 American cities with a population of 30,000 or over has been compiled. The mortality^a of the 10 cities making the best showing was in only one instance below 10 per 100,000 of population, and ranged from 6 to 19 per 100,000, the average being 15.4, or more than three times the average of the best 10 cities of the world. Seven cities had a mortality of 19 per 100,000, and if these are included with the others it makes a total of 16 with a mortality below 20 and an average mortality of 16.8. The list from lowest to highest is as follows: Rockford, Ill., Yonkers, N. Y., Bridgeport, Conn., Cambridge, Mass., Rochester, N. Y., Fall River, Mass., Elizabeth, N. J., Bayonne, N. J., Detroit, Mich., Worcester, Mass.,

St. Joseph, Mo., New York, N. Y., Milwaukee, Wis., Manchester, N. H., Malden, Mass., Lynn, Mass. We have no authoritative information as to the source of water-supply or method of sewage disposal of these cities, but understand that none of them filter their water.

In an effort to show how it might be possible to determine the mortality from typhoid arising from sources of infection other than a municipal water-supply we have given the above lists. One is a list of 10 cities from the most highly civilized countries of Europe, with a mortality of 5.1, the most favorable showing that can be found in the world; one a list of four cities from the same countries with a mortality of 19; and the third of 16 cities of the United States, with a mortality of 16.8, the best showing for cities of this size that can be found in our country. The suggestion is at least very strong that the differences shown must be very largely due to differences of water-supply, and that a typhoid mortality above 10 per 100,000 indicates a polluted water, which a municipality has no moral or legal right to furnish to its citizens.

Ten or 11 of the 132 cities of the United States with a population of 30,000 or over take their drinking water from and deposit their sewage into the Great Lakes. Of these Detroit, the ninth in the list, had the smallest average mortality in the years 1898 to 1901, 18 per 100,000; Milwaukee came next, the thirteenth on the list, with a mortality of 19; Buffalo is number 48 in the list with a mortality of 27, Chicago, number 51, with 28; Cleveland, 83, with 39; Duluth, 120, with 65. If our suggestion is reasonable that a typhoid mortality above 10 per 100,000 of the population of any municipality indicates a polluted water, then it would seem, on a consideration of these figures, that the burden of proof must lie with anyone who wishes to argue that Cleveland, even after the completion of the improvements planned, or, indeed, any other city taking its water from the Great Lakes, will have an unpolluted water-supply.

THE INTERCEPTING SEWER

The city administration appears to be very desirous that the public believe that the water from the new intake will be entirely acceptable when the intercepting sewer is completed. The end of this work is so far away, five years or more at the best, that to wait for enlightenment from personal experience is criminal, if a study of conditions elsewhere will inform us as to the probable character of the municipal water after the introduction of the intercepting sewer. The present is, therefore, an excellent time

to consider, and, if possible, to fix upon an ideal toward which the City of Cleveland should direct its efforts in the matter of a satisfactory water-supply.

At the millenium no sewage will be discharged into any source of water-supply. If, however, we wish a public water for Cleveland which shall reduce the incidence and mortality of typhoid fever in the city to the lowest possible figures, it seems foolish as a practical proposition to consider the water from the new intake, either now or in the future, as better than would be indicated by the statement that it is subject to pollution from time to time, and will not reduce our typhoid death-rate to a satisfactory minimum. The medical profession of Cleveland as represented in the Academy of Medicine, after a rather careful consideration of the subject, advise an intake far enough out in the Lake to obtain water with a minimum of pollution, a system of intercepting sewers, sewage purification, and a suitable filtration plant properly controlled. The first of these is completed, with, possibly, an inadequate pumpage, the second is under construction but will not be in operation for five or more years. If our ideal shall be a typhoid mortality of 10 to 12 per 100,000 of the population or less, we may be quite sure from these considerations (a) that the projected improvements will not give it, and (b) that the advice of the Academy of Medicine if followed should do so.

Has the Typhoid Fever Situation in Cleveland been Exaggerated?

On two occasions recently the public has been informed through the lay-press, from sources which it might be pardoned for considering authoritative, that the number of cases of typhoid in Cleveland had been greatly exaggerated by the cases reported to the Health Office. In the first instance the statement was apparently based upon an investigation of the subject, and might be accepted even by physicians as indicative of the truth of the contention. That the majority of cases reported as typhoid are so reported fairly early the JOURNAL is fully aware, and readily admits the possibility of a difference between an early and a final diagnosis. This admission, however, is very different from the statement, to which we feel that we must take exception, that the number of cases has been exaggerated, since the former implies that the number of cases erroneously reported greatly exceeds the number not reported, and is thus a serious reflection upon the ability and honesty of the physicians of the city. The apparent

source for this assertion is due to the number of negative examinations of blood for the Widal reaction. The public was told that of 36 cases which were reported to the Health Office as typhoid fever in January and in which later a blood examination was made, the Widal reaction was positive in less than 10%. There were in both January and February only 43 positive reports of the finding of a Widal reaction by the city laboratory, but these 43 constituted 25% of all patients from whom blood was sent for examination. To those who are aware of the stage of the disease in which this reaction is usually found, and know further that specimens of blood are sent very early to the city laboratory, it will not be surprising that a very large percentage of negative findings are reported. It is, moreover, probable that much anxiety will be felt early in many cases on account of the great prevalence of typhoid, and that specimens of blood from many patients who are found later not to have typhoid will be sent to the laboratory. It may be well to state in this place that the only cases of typhoid fever of which the Board of Health takes cognizance are those entered in the "contagious disease book," and that none are so entered on the basis of blood sent to the city laboratory, whether the findings of the laboratory be positive or negative, but only upon the receipt of an independent report by the physician in charge of the case: in other words the examination of the blood of suspected typhoids is of no direct value to the city.

An investigation of this subject was undertaken in March, covering the months of January and February. It was noted that a number of physicians who were known to have had cases of typhoid fever during the period covered by the investigation had reported no cases to the Health Office. Further a number of physicians, on being asked concerning cases reported by them, volunteered the information that they had treated additional cases which they had not reported. Of 100 cases from which physicians sent blood to the city laboratory and received a report that the Widal was negative, 47 ran a typical typhoid course, but none were reported as typhoid fever. In January and February 184 specimens of blood from 178 to 180 patients were sent to the city laboratory; 43 of these, or 25%, had a positive Widal, but only 12 were reported as cases of typhoid fever. This indicates a total number of 31 cases of typhoid fever, as determined by the presence of the Widal reaction, which were not reported to the city, and a further number of 63 (47% of 135 patients for whom the Widal reaction was reported negative) who might justly be counted as having had typhoid fever from the further clinical course of the

disease, or a total of 94, being 15% of the 612 cases reported to the city in January and February as having the disease. The conservatism of our physicians in reporting cases of typhoid fever is indicated by the fact that of 92 cases reported in January the subsequent course of the disease warranted the diagnosis, according to the statement of the attending physician in all but one case.

It is quite impossible to determine just how many cases of typhoid fever there are in the city at any time. In view of the failure on the part of physicians to report all of their cases it is undoubtedly true that the total number is decidedly larger than the number reported, even after making allowance for errors. From a comparison of the number of deaths from typhoid fever and the number of cases reported, and as well as from the facts given above, it seems unlikely that these reports have ever been more than one-half to two-thirds of the actual number of cases in the city.

Legislation

A number of bills have been introduced at the present session of the Legislature which are of importance to the medical profession of the State of Ohio, or relate to matters concerning the public health. Although it is probable that the session of the Legislature will have adjourned before the present number of the JOURNAL appears, one of these bills will be briefly noted:

SENATE BILL 99

The proper registration of births and deaths as they occur is essential to the progress of medical and sanitary science. The registration of births and deaths in the United States is not, as in European countries, under the supervision of the general government, but is entirely under the control of the States. One sort of a law or another is to be found almost everywhere, but effective laws are confined to the New England States and a very few others; certain cities in nonregistration States increase somewhat the population of the registration area. With the exception of the State of Michigan the rural portion of the entire west and south is wholly unrepresented.

A complete registration of births is not only of value in a general way but furnishes official record for the protection of the individual in the determination of questions relating to inheritance, child labor, voting age, etc. A complete and accurate registration of deaths is necessary for the prevention and restriction of disease, and for the application of remedies for their amelioration.

The newly-organized permanent Census Bureau with a department of Vital Statistics, which will continue its work in inter-census years, makes the introduction of such a bill as that known as Senate Bill 99—to require the complete registration of births and deaths—most timely.

The essential features of this bill are provisions for local registrars to receive and transmit records of births and deaths to the Secretary of State, who is made the State Registrar of Vital Statistics, a properly filled certificate of death being absolutely required before burial or removal of a body is permitted; the use of certificates of births and deaths prescribed by the United States Census Bureau, which secure for the deceased all information collected by census enumerators for the living population; and the adoption for the entire registration area of the International Classification of Causes of Death. The bill as presented is in brief form, and leaves much to be covered by regulations to be promulgated by the State Registrar, with the advice and assistance of the State Board of Health. The last feature mentioned is not distinctly specified in the bill, but must be covered by the regulations adopted in order to make the effect of the law satisfactory. Such a bill as that proposed for Ohio has been in most satisfactory operation in Michigan for a number of years, and there is no reason why it may not be as well administered in this State.

The movement toward a more complete registration of Vital Statistics and the extension of the registration area in the country has the interest and support of the Census Bureau, and of the National Congress, the American Medical Association, the American Public Health Association and other representatives of the organized medical profession. The movement in Ohio is simply a part of a general movement toward the end desired by these bodies and was begun under the influence of the Census Bureau. It has the support of the Department of State and the State Board of Health, and should have the hearty backing of the State Medical Association and all local medical societies.

If the bill fails of passage at the present session it will be due merely to a failure on the part of local societies to impress upon the members of the Legislature its importance.

The Students' Bill

A bill having for its object the exemption of medical students of Ohio colleges from examination by the State Board of Registration and Examination was introduced into the House of Representatives February 4 and referred to the Committee on Universi-

ties and Colleges. The Secretary of the Ohio State Medical Association, learning by chance of this session, demanded a hearing on the part of the profession. He was informed that on that day a hearing would be accorded the physicians. The Secretary insisted that he must have sufficient time to get the physicians to Columbus. The hearing was granted on the evening of February 8. Before the Committee met it was reported that the seven members of the Committee were all in favor of the measure. At the meeting there were present four members of the Committee, about 20 physicians, representing a number of the County Medical Societies, and about 90 medical students. At the conclusion of the session a canvass showed two for, and two against, the students' measure. On the next morning this Committee reported the bill to the House and recommended its passage. A canvass of the Legislators showed 75 members pledged to vote for the bill, which was placed on the calendar for final vote at 11 o'clock on the morning of the tenth. During the night of February 9 the officers of the State Medical Association sent telegrams to the Presidents of the County Medical Societies requesting them, in the name of their Societies, to urge upon their Representatives in the General Assembly the necessity of defeating the students' bill. The bill was defeated by a vote of 69 to 38.

The Chairman of the Committee on Universities and Colleges has announced his intention of presenting a bill to the House providing for the reduction of the students' fee for examination from \$25 to \$5. Every physician should urge upon his Representative the necessity of defeating this amendment to the law. The Ohio State Board of Medical Registration and Examination is dependent upon the revenue from the examinations for its maintenance. It has never received any pecuniary support whatever from the State.

As to the Location of the Ohio Hospital for Epileptics

We have already advanced some arguments (Another Colony for Epileptics, CLEVELAND MEDICAL JOURNAL, January, 1904) in refutation of those proclaimed by the small group of individuals who propose to put the State of Ohio to the expense of establishing another epileptic colony. The Ohio Board of State Charities is on record as espousing this plan and, as shown by its Twenty-seventh Annual Report (*Ibid*, 1902, p. 7), bases its principal objection upon the *location* of the Gallipolis colony. This report, signed among others by General R. Brinkerhoff, says: "The unfortunate location of our Hospital for Epileptics at Gallipolis

does not admit of a proper development of the Colony system." We have taken occasion to controvert this conclusion, and it may be of interest to those concerned to learn that our position finds enthusiastic support by General Brinkerhoff's own utterances on the occasion of laying the corner stone of this institution November 12, 1891. We quote the General's remarks as published in the First Annual Report of the Ohio Hospital for Epileptics: "For beauty of situation, for healthfulness of climate, for sympathetic surroundings, and for accessibility to the larger half of the people of the State, no better location could have been selected than Gallipolis."

Ohio State Medical Association

We publish elsewhere in this number of the JOURNAL (see page 237) the program in full for the annual meeting of the Ohio State Medical Association which is to take place in Cleveland on May 18, 19 and 20. The committee in charge of this meeting has made an earnest effort to secure a large number of interesting and valuable papers, the broad scope of which can be seen at a glance from the perusal of the program. So much has been accomplished in the last 18 months toward an improvement of our State Medical Associations, generally, including county, local and allied organizations, that we are promised a meeting of exceptional interest. The meetings of the Association are to be held at the Hollenden Hotel, and arrangements have been made so carefully that there will be but little conflict in the delivery of the most important papers in the respective branches of the Association. May we urge upon the profession of the State, as well as upon the local profession of our City, that they respond actively in their interest in behalf of this meeting, which is the first that we have had in Cleveland for a number of years. The work of the State Association is of inestimable value to the profession throughout the State, and only by taking an active interest in its affairs can we hope for continued improvement in matters pertaining to medical legislation which are of such vital interest to us all.

The Wages of State Hospital Attendants

During the proceedings of the Ohio Senate the other day, Senator David H. Moore, of Athens, stated the pitiful conditions surrounding the remuneration of attendants in our State hospitals that must arouse the sympathy of every member of our profession. During the discussion of a bill amending the Statute governing

the salaries of teachers and matrons of the Ohio Sailors' and Soldiers' Orphans' Home, Senator Moore pointed out how the female attendants in one of our State hospitals were required to assume the care of 30 insane women for 12 hours a day and to sleep on duty adjoining the dormitories at night, for a salary of \$12 to \$18 a month. Very properly, in our estimation, the Senator protested against this state of affairs and urged his colleagues to give it their serious consideration. A compensation so niggardly for services so exacting and hours so long should arouse the righteous indignation of the public and of our profession. What a pity that in this, the year when the General Assembly has permitted salaried officials to raid the surplus in the State Treasury, the poor over-worked attendants in the State hospitals have been neglected! Why has it not come to the aid of those liberally-inclined superintendents who would, if their appropriations permitted, double the number and increase the salaries of their attendants?

This injustice can only be remedied when the Employees' Association, now organizing in the State, can bring its pressure to bear in Columbus to the aid of humane and generously inclined legislators like Senator Moore.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Diabetes : W. H. Thompson, in *American Medicine* for February 20, states concerning medicines in

diabetes mellitus that he rarely prescribes opium, codein, or any other of the opium derivatives, and cannot regard this drug as of real service. He believes it to be only a functional remedy, having no power, in therapeutic doses, to affect structure or nutrition directly, however long it may be prescribed. Opium may affect the symptom, the sugar in the urine, by temporarily diminishing it, but has no effect upon the disease which causes that symptom. He has for years advocated the free use of cod liver oil in diabetes, and the younger the patient, the more persistently he urges it. So long as the stomach does not rebel, diabetic patients of this class cannot take too much cod-liver oil, and he testifies that it both diminishes the sugar, and the excess of urea eliminated, whenever freely taken and well borne. Next to cod-liver oil, he places iron, and gives it in the old-fashioned Hooper's pills, consisting of sulphate of iron with laxatives. He asserts, also, as an empiric fact that he has succeeded better in the control of diabetes mellitus, so far as the use of drugs goes, by a persistent use and free administration of antiseptics than by any other means, cod-liver oil and iron excepted. He includes arsenic in this class, either as arsenious acid or in the liquid forms. When he wishes a speedy reaction in which a large amount of sugar is being voided he gives one gram (15 grains) of antipyrin with the same proportion of sodium ben-

zoate four times a day. After a time he substitutes one gram (15 grains) of aspirin with .65 grams (10 grains) of bismuth salicylate. In diabetic coma he relies upon prolonged intestinal irrigation with hot normal saline solution, using Kemp's rectal irrigator.

Tuberculosis: H. E. Stroud, in *Merck's Archives* for February, believes that in pulmonary tuberculosis it is a reflection on the medical profession that ergot is still in general use. The action of ergot is to raise the arterial pressure, a most undesirable condition when hemorrhage is coming from open vessels which we are unable to tie. In these cases of pulmonary hemorrhage a hypodermic injection of morphin and atropin should be given at once, the patient put to bed, and the strictest quiet enjoined. Ice may be applied to the chest and eaten, and if the hemorrhage continues the extremities should be corded at the body just tight enough to check the return of venous blood. The cords should be loosened gradually and the imprisoned blood returned to the general stream. Occasionally hemorrhage comes from so large a vessel that it must be ligated, and our only measure is to fill the chest cavity with nitrogen gas, after the plan of J. B. Murphy. Having controlled the hemorrhage, in order to prevent its recurrence, nothing can take the place of rest and quiet. He believes that the best remedy to use in these cases is calcium chlorid. He usually gives calcium chlorid (Merck's C. P.) one ounce, glycerin one ounce, and water to make one pint; of this he gives a tablespoonful three or four times a day. He sometimes combines one-fourth grain of codein with three grains of supra-renal extract, and 15 grains of calcium chlorid in capsule, three or four times a day. There is no immediate effect from the calcium chlorid, but its effect is more permanent than that of any other drug.

Iodonucleoid: Iodonucleoid is an organic form of iodine, and G. Frank Lydston, in *Medicine* for March, presents the conclusions he has drawn from a large number of cases in which he has used it. (1) Iodonucleoid is a nonirritating, thoroughly assimilable form or preparation of iodine. (2) It is less likely to produce iodism from a given quantity of the contained iodine than any of the iodine salts he has used. (3) It is a perfectly stable preparation, which can be administered in pill, capsule, tablet or powder form. (4) While he is not prepared to state that it fills the rôle of iodid of potassium in every instance, he has no hesitation in affirming that in some cases which are intractable to the action of the iodid of potassium, excellent results are obtained from idonucleoid. He is convinced that idonucleoid is less toxic in its action than the ordinary salt of iodine, and it fills a unique place in the administration of iodine to female patients on account of its comparatively unirritating action on the gastric mucosa. Another special advantage it possesses is the fact that it can be advantageously combined with various mercurial and other salts.

Ptyalism: O. T. Drennen, in the *Medical and Surgical Monitor* for January, insists on the necessity for care in the treatment of the mouth in syphilitic patients. It is not enough to tell our patients to care for the mouth, as usually instructed. We should go into detail. When taking mercury, after the patient has seen a competent dentist, it is absolutely necessary to brush the teeth

thoroughly before and after every meal. If the gums are tender, spongy, and have a tendency to bleed easily, he applies alcohol to them once daily. It may be necessary to apply cocain in some cases before using the alcohol. Again the patient may carry these directions out faithfully, and yet ptyalism results. If one other procedure be left undone, *i. e.*, when the brushing of the teeth is finished, if the patient will take the thumb or finger and carry out a systematic massage of the gums for several minutes, not less than half a dozen times daily, or often more, we need have no fear of ptyalism. During the past seven years this has been his custom, and during that time he has used unguentum hydrargyri in doses from a half dram to two-thirds of an ounce daily, externally, for weeks at a time, and he has not observed a single well-developed case of ptyalism as a result of this treatment.

Morphin in Nephritis: In the *Therapeutic Gazette* for March, Tyson treats of the use of morphin in nephritis. He has always advised caution in the use of morphin in Bright's disease, believing that he has seen uremia precipitated by it. He is not surprised to hear it claimed that the drug has been of signal service in the treatment of puerperal convulsions, as the truth is that morphin is dangerous mainly, or perhaps only, in chronic interstitial nephritis. The majority of cases of puerperal eclampsia are due to parenchymatous or epithelial nephritis, and in these morphin may be used with comparative safety and brilliant results. Since, however, interstitial nephritis is responsible for a few cases, some risks must be run if morphin is indiscriminately used. As a precise diagnosis is not often made, the safest course is to get along without it, or defer it until other measures fail. Experiment has confirmed the results of clinical teaching and thus explains them. The convulsions of parenchymatous nephritis may be treated with morphin with comparative safety, because the renal epithelium is still capable of eliminating it. Since most of the cases of puerperal eclampsia occur in connection with parenchymatous nephritis, it is evident why results are often so brilliant. When it happens, however, and especially when the nephritis has preceded pregnancy, that the disease is interstitial nephritis, the use of morphin is attended with large risk. He believes, also, that in using hypodermoclysis in uremic convulsions, sweating should precede the hypodermoclysis. This will avert the danger of overloading the venous side of the circulation and so dangerously dilate the right heart.

Arsenic: Howard S. Anders, in the *Medical News* for March 19, states that arsenic is an improver of nutrition, seeming to be a direct stimulant to nutrition by diminishing or checking tissue waste. Indirectly it improves nutrition by increasing the recuperative powers, and some people need arsenic to create a normal neuromuscular vigor, just as the syphilitic needs the iodids, and the chlorotic, iron. He hesitates in regard to employing it in cases of tuberculosis, although he believes it to be of value in those cases in which fever is absent. He believes it almost a specific in St. Vitus' dance, and thinks it best administered by beginning with about three drops of Fowler's solution and increasing about two or three drops each successive day. He considers the drug of great importance in the treatment of chronic malaria, anemias, cachexias, and in intermittent malarial neuralgia.

The Academy of Medicine of Cleveland and its Sections

The Clinical and Pathological Section meets regularly the first Friday of each month.

The Section of Experimental Medicine meets regularly the second Friday of each month.

The Academy meets regularly the third Friday of each month.

The Ophthalmological and Oto-Laryngological Section meets regularly the fourth Friday of each month.

The Academy meets at the Cleveland Chamber of Commerce, while all Section meetings are held at the Cleveland Medical Library.

For the purpose of record, we publish the following list of physicians who are the officers and committees of the Academy of Medicine of Cleveland for the year 1904.

President, George W. Crile; Vicepresident, Wm. E. Bruner; Secretary, Edward Lauder; Treasurer, Oscar T. Thomas.

Trustees—H. E. Henderson, Robert Pollock, W. H. Humiston, H. C. Ballard, Hunter Robb, W. O. Osborn.

The following are the standing committees, the first-named being Chairmen:

Membership—J. J. Thomas, A. F. Maschke, N. C. Yarian, D. S. Hanson, L. W. Childs, E. O. Houck, C. E. Ford.

Public Health—W. T. Howard, Jr., R. G. Schnee, H. E. Handerson, F. E. Bunts, R. G. Perkins.

Legislative—T. C. Martin, R. E. Skeel, H. G. Sherman, J. E. Tuckerman, R. J. Lawlor.

Program—W. H. Merriam, N. M. Jones, F. C. Herrick.

The seventh regular meeting of the Ophthalmological and Oto-Laryngological Section was held at 8:00 P. M., Friday, March 25, at the Cleveland Medical Library.

Mark D. Stevenson, of Akron, presented a paper entitled "The Practical Application and Use of a Simple Test for the Latent Convergent Power." This paper was discussed by A. R. Baker, W. E. Bruner, Edward Lauder, and L. K. Baker.

Elmer L. Mather, of Akron, presented a paper entitled "The Use and Abuse of the Artificial Drum-Head." It was discussed by A. R. Baker, J. W. Lenker, and S. H. Large.

W. E. Bruner presented a case of partial paralysis of the right internal rectus muscle, the sphincter of the iris and the ciliary muscle.

The meeting of the Clinical and Pathological Section of the Academy of Medicine of Cleveland was held on April 1. Frank E. Bunts was in the chair. Dr Placak presented a specimen of ruptured liver resulting from apparently slight traumatism. Hubert L. Spence read an interesting report of two cases of faciolingual hemiatrophy and presented the patients for inspection. This paper will appear in the June issue of this JOURNAL. W. O. Osborn reported a case of malignant endocarditis. This paper will appear in a subsequent issue of the JOURNAL.

Ohio State Medical Association

FIFTY-NINTH ANNUAL MEETING

CLEVELAND, MAY 18, 19 AND 20, 1904

All Meetings and Exhibits on the Parlor Floor of the Hollenden Hotel.

HOTELS

Hollenden Hotel, European Plan, Rates \$1.50 to \$3.50 per day.
Association Headquarters, corner Superior and Bond Streets.

Hotel Euclid, European Plan, Rates \$1.00 to \$3.50 per day. Corner
Euclid Avenue and Brownell Street.

Colonial Hotel, European Plan, Rates \$1.50 to \$3.50 per day. Colonial
Arcade, Euclid Ave. opposite Bond Street.

Forest City House, Rates \$2.00 to \$3.50 per day. Southwest Side of
Public Square.

American House, Rates \$2.00 to \$2.50 per day. Superior opposite
Bank Street.

Further information concerning hotel accommodation will be given
by the bureau of information. It is advisable that members should by
correspondence arrange for their hotel accommodation.

Railroad Rates—To secure the rate of one and one-third fare for the
round trip, get a certificate from your ticket agent when you purchase
your ticket for Cleveland. This certificate, when endorsed by the Secre-
tary of the Association and the Special Agent of the Central Traffic
Association, entitles the holder to a return ticket for one-third of the
regular fare. Tickets should not be purchased more than three days
prior to the meeting, and they are good three days after the meeting.
The Special Agent will be in attendance on Thursday, May 19, and the
certificates must all be in the possession of the Secretary on or before
that day.

PROGRAM

Wednesday Morning, May 18, Meeting of the House of Delegates.
Call to Order at 11 o'clock. Miscellaneous Business. Nomination and
Election of Nominating Committee. Nomination and Election of Com-
mittee on Scientific Work. Nomination and Election of Committee on
Public Policy and Legislation. Nomination and Election of Committee
on Publication.

Wednesday Afternoon—General Meeting. Call to Order at 1:30 P. M.
Report of Committee of Arrangements.

Address of the President
C. S. HAMILTON.....Columbus
Report of Cases of Syphilis of the
Stomach
C. F. HOOVER.....Cleveland
Academy of Medicine of Cleveland
Natural and Artificial Immunity
J. ROBERT CAYWOOD.....Piqua
Miami County Medical Society
Treatment of Appendicitis with Sup-
puration Diffused Among the
Intestines and not Limited
by Adhesions
DUDLEY P. ALLEN.....Cleveland
Academy of Medicine of Cleveland

Observations by a General Practitioner
H. B. GIBBON.....Tiffin
Seneca County Medical Society
Icterus Neonatorum and Icterus
Infantum
HORATIO CHISHOLM.....Marion
Marion County Medical Society
Abscess of the Temporo-Sphenoidal
Lobe
THOMAS HUBBARD.....Toledo
Academy of Medicine of Toledo and
Lucas County
Inveterate Empyema Modified by
Decortication of the Lung
JOSEPH RANSOHOFF.....Cincinnati
Academy of Medicine of Cincinnati

- Timely Operation in Appendicitis
F. C. HUTH.....Woodsfield
 Monroe County Medical Society
- Open Air Treatment of Tuberculosis in
 Northern Ohio
JOHN P. SAWYER.....Cleveland
 Academy of Medicine of Cleveland
- Some Observations on Climatic
 Changes in Respiratory
 Diseases
T. N. WHITELEATHER.....Malvern
 Carroll County Medical Society

- Fifty Years in Medicine
JOHN D. WEST.....Hopedale
 Harrison County Medical Society
- Specific Treatment of Exophthalmic
 Goitre
L. P. HOWELL....Washington, C. H.
 Fayette County Medical Society
- Diabetes Mellitus with Especial Refer-
 ence to Aetiology
GEO. F. ZINNINGER.....Canton
 Stark County Medical Society

Wednesday Evening—Meeting of the House of Delegates. Call to Order at 8:00 o'clock. Reports of Officers and Committees. Reports of the Councilors. Miscellaneous Business.

Thursday Morning, May 19, Medical Section—Call to Order at 9:00 o'clock.

- Some Unusual Manifestations of
 Influenza
CHAS. H. HIGGINS.....Sonora
 Muskingum County Medical Society
- Migraine
D. N. KINSMAN.....Columbus
 Columbus Academy of Medicine
- The Plea of Insanity
R. H. GRUBE.....Grape Grove
 Green County Medical Society
- Dilatation of the Heart
D. C. HOUSER.....Millerstown
 Champaign County Medical Society
- Idiopathic Cardiac Dilatation
GEO. A. FACKLER.....Cincinnati
 Academy of Medicine of Cincinnati
- Studies on the Aetiology of Variola
WILBUR TRAVIS HOWARD and
ROGER G. PERKINS....Cleveland
 Academy of Medicine of Cleveland

- Carcinomatous Transformation of
 Ulcer of the Stomach
JOHN DUDLEY DUNHAM..Columbus
 Columbus Academy of Medicine
- Gastretasia, Its Clinical Significance
 and Treatment
D. B. CONKLIN.....Dayton
 Dayton Academy of Medicine
- Acute Inflammatory Rheumatism
CHARLES W. SNOOK....Clarksville
 Clinton County Medical Society
- Modern Medicine
D. W. McQUEEN.....Camden
 Preble County Medical Society
- Suggestive Therapeutics
R. H. TRIMBLE.....Mt. Sterling
 Madison County Medical Society
- Purpura Haemorrhagica
C. E. NORRIS.....Akron
 Summit County Medical Society

Thursday Morning, May 19, Surgical Section—Call to Order at 9:00 o'clock.

- Some Practical Deductions from Per-
 sonal Experiences with Ectopic
 Gestation
R. E. SKEEL.....Cleveland
 Academy of Medicine of Cleveland
- Contracture of the Neck of the Bladder
THOS. GRANT YOUNG..Columbus
 Columbus Academy of Medicine
- Hernia of Meckels Diverticulum, with
 Report of Case of Strangulated
 Inguinal Hernia of Same
FRANK E. BUNTS.....Cleveland
 Academy of Medicine of Cleveland
- Traumatic Ostitis of the Ulna and
 Treatment by Operation
JOSEPH ROBERTSON....Steubenville
 Jefferson County Medical Society
- The Early Recognition of Osteomyelitis
 and Prompt Surgical Interference
 in its Treatment
D. S. OLMSTEAD.....Millersburg
 Holmes County Medical Society

- Conservatism in Pelvic Surgery
HUNTER ROBB.....Cleveland
 Academy of Medicine of Cleveland
- Retroversion
J. C. TRITCH.....Findlay
 Hancock County Medical Society
- A Resume of Clinical Results of Oper-
 ation on the Kidneys, with a
 Report on the Newer
 Methods of Diagnosis
GEORGE W. CRILE and **WM. E.
 LOWER**Cleveland
 Academy of Medicine of Cleveland
- Some Considerations of Empyema
MARK MILLIKIN.....Hamilton
 Butler County Medical Society
- Nervous Phenomena and Local Dis-
 ease, the Question of Surgical
 Intervention
E. S. STEVENS.....Lebanon
 Warren County Medical Society

The Diagnosis and Treatment of
HerniaJESSE McCLAINCoshocton
Coshocton County Medical SocietyThe Surgical Treatment of Minor
InjuriesW. N. BRADFORD.....Cambridge
Guernsey County Medical Society

Thursday Afternoon, Meeting of the House of Delegates. Call to Order at 1:30 P. M. Report of Nominating Committee and Election of Officers. Selection of Place of Meeting. Miscellaneous Business. Adjournment.

General Meeting—Call to Order at 3:00 P. M. Oration in Surgery.

The Surgery of the Prostate

G. FRANK LYDSTON.....Chicago, Ill.

An Experimental Inquiry into the
Causation of Caisson DiseaseJ. J. McLEOD.....Cleveland
Academy of Medicine of Cleveland

Combined Sclerosis of the Spinal Cord

DAVID I. WOLFSTEIN.....Cincinnati
Academy of Medicine of CincinnatiPregnancy Complicated by Fibroid
TumorsCHAS. L. BONIFIELD.....Cincinnati
Academy of Medicine of Cincinnati

Plea for Perfect County Organization

CON GATCH.....Milford
Clermont County Medical SocietyWhat May be Accomplished by the
Organized Profession Toward
Improving the Ohio State
Medical InstitutionsA. P. OHLMACHER.....Gallipolis
Gallia County Medical Society

Thursday Evening, Annual Banquet, Hollenden Hotel.

Friday Morning, May 20, Medical Section—Call to Order at 9 o'clock.

A Neglected Factor in a Medical
ProblemD. R. SILVER.....Sidney
Shelby County Medical Society

Habit

C. D. MILLS.....Marysville
Union County Medical Society

Some Therapeutic Needs

JOHN A. LARKIN.....Hillsboro
Highland County Medical Society

Neglected Little Things

R. S. REID.....Bucyrus
Crawford County Medical Society

Mental Depression

CHAS. S. McDOUGALL.....Athens
Athens County Medical Society

Arterio-Sclerosis

A. L. STEINFELD.....Toledo
Academy of Medicine of Toledo and
Lucas County

Radium and Radio Activity

MYRON METZENBAUM.....Cleveland
Academy of Medicine of Cleveland

Friday Morning, Surgical Section—Call to Order at 9 A. M.

Contusions of the Abdomen

C. A. HAMANN.....Cleveland
Academy of Medicine of ClevelandThree Recent Cases of Croup due to
Staphylococcus and Requiring
TracheotomyF. P. ANZINGER.....Springfield
Clark County Medical Society

Pancreatitis

WM. J. GILLETTE.....Toledo
Academy of Medicine of Toledo and
Lucas CountyAcute Hemorrhagic Pancreatitis, with
Report of CaseJ. H. J. UPHAM.....Columbus
Columbus Academy of Medicine

Cocain Anesthesia in General Surgery

W. J. MEANS.....Columbus
Columbus Academy of MedicineThe Relation Between Typhoid Fever
and AppendicitisN. STONE SCOTT.....Cleveland
Academy of Medicine of ClevelandSacral Teratoma with the Report of an
Interesting CaseLESTER KELLER.....Ironton
Lawrence County Medical SocietyImportance of Early Recognition of
Abdominal Visceral PerforationsJ. H. JACOBSON.....Toledo
Academy of Medicine of Toledo and
Lucas CountyThe Need of More Careful Work in
ObstetricsFRED WARFIELD LANE..Cambridge
Guernsey County Medical SocietyInstructions to the Nurse for the Con-
trol of Anal HemorrhageTHOS. CHAS. MARTIN.....Cleveland
Academy of Medicine of Cleveland

Association of Assistant Physicians of Ohio State Hospitals

The third meeting of the Association of Assistant Physicians of the Ohio State Hospitals was held on April 6 and 7, 1904, in the Pathological Laboratory of the Ohio Hospital for Epileptics at Gallipolis.

AFTERNOON SESSION, APRIL 6

President's Annual Address, G. T. Harding, Jr., Columbus. Subject: "The Reasons for the Existence of the Association of Assistant Physicians, and Its Policy." In his address, Dr Harding took occasion to protest strongly against a niggardly economy to the detriment of the best medical work in these institutions. The paper was discussed by General Roeliff Brinkerhoff and Mr Shirer of the Ohio Board of State Charities, guests of the Association, and by Drs W. H. Pritchard, N. H. Young, and G. T. Harding, Jr.

J. O'Brien discussed two cases of presenile delusional insanity observed by him at the Massillon State Hospital and at the McLean Hospital.

Ralph W. Holmes, Gallipolis, presented the specimens from a case of epilepsy following scarlet fever, in which the accessory sinuses on the left side were found at autopsy enormously enlarged and the left half of the cerebrum destroyed in large part. Here the aphasia following the disease gradually subsided and speech was regained while the patient became left-handed.

E. B. Morrison, Gallipolis, exhibited an epileptic patient with facial hemiatrophy.

Wm. H. Pritchard, Gallipolis, gave the clinical history and presented the pathologic specimens from a case of paradoxical embolism due to a persistent foramen ovale.

Walter H. Buhlig, Gallipolis, presented an epileptic with astasia-abasia.

Arthur G. Helmick, Gallipolis, read the clinical history and showed the specimens from an epileptic who died from measles and laryngeal diphtheria.

Paper "The Surgical Treatment of the Insane" by George R. Love, Toledo, read by title.

Paul W. Tappan, Dayton, read a paper entitled: "Entertainment and Amusement for the Insane." The paper was discussed by Drs N. H. Young, R. W. Holmes, E. E. Gaver, G. T. Harding, Jr., and Tappan.

EVENING SESSION, APRIL 6

Earl E. Gaver, Columbus, read a paper entitled: "Changes Needed in the Ohio Lunacy Laws." Dr R. W. Holmes, Mr Shirer, Drs Morrison, Young and Gaver discussed the paper.

F. D. Ferneau, Toledo, read a paper entitled "Tuberculosis in the Insane." Inasmuch as this is a question now being debated by the medical profession and the legislative bodies of Ohio, and as it concerns directly the treatment of the tuberculous patients in the various State hospitals, it was freely and intelligently discussed by the members of the Association. Following are those who took part in it: Drs Gaver, Harding, Ohlmacher, Pritchard and Ferneau.

MORNING SESSION, APRIL 7

Edson C. Brown, Massillon, read a paper entitled "Paranoia." The discussion was by Drs Tappan, Bradley and Brown.

A. P. Ohlmacher, Gallipolis, presented and discussed the pathologic specimens in "A Case of Aquatic Sudden Death of Status Lymphaticus in an Epileptic."

Following the completion of the program, the business of the Association was transacted. After reports of committees had been heard, the Association proceeded to the election of officers which resulted as follows: President, Wm. H. Pritchard, Gallipolis; Vicepresident, Paul W. Tappan, Dayton; Secretary, Walter H. Buhlig, Gallipolis; Treasurer, F. D. Ferneau, Toledo.

As a result of the discussion of Dr Gaver's paper on needed reforms in Ohio's lunacy laws, the legislative committee was charged with making a study of these laws in order to bring up for consideration at a future meeting such changes as seemed needed.

Ralph W. Holmes, Gallipolis, James F. Kelley, Cleveland, and Mylo Wilson, Athens, were appointed by the President to represent the interests of the Association at the meeting of the Ohio State Medical Association to be held at Cleveland.

WALTER H. BUHLIG, Secretary.

Book Reviews

We have received a circular notice of a work soon to be published in 12 octavo volumes entitled the "Doctor's Recreation Series." This work is to be published under the editorship of Charles Wells Moulton, of Buffalo, N. Y., who is to have associated with him a number of prominent physicians throughout the country. This work is published with a view to appealing directly to the interest of physicians, and is to consist of stories, historic reviews, biographic sketches, and various episodes dealing directly with medical life. We note that Volume III is a novel entitled "In the Year 1800, Being a Relation of Sundry Events Occurring in the Life of Dr Jonathan Brush During That Year," by Samuel W. Kelley, of this city.

Atlas and Epitome of Operative Gynecology. By Dr O. Schäffer, of Heidelberg. Edited, with additions, by J. Clarence Webster, M. D. (Edin.), F. R. C. P. E., Professor of Obstetrics and Gynecology in the Rush Medical College, in affiliation with the University of Chicago. With 42 lithographic plates in colors, many text-cuts, a number in colors, and 138 pages of text. Cloth, \$3.00 net. W. B. Saunders & Co., 1904.

Lehmann's medical hand atlases are already well known in this country and the translation into English will be very welcome by the medical profession. The editor is a well-recognized leader of progressive gynecology and has added to the value of the original work by occasional comments and suggestions. Graphic colored illustrations of the principal gynecologic operations are given. It is, of course, impossible to give all, or to give the various modifications, or the different methods of performing the same operation. No two operators employ the same procedure, but the principles are the same and the work illustrates these admirably. Practically all the plates illustrate work performed through the vagina, one series only illustrating an abdominal operation, supravaginal hysterectomy. The plates are artistic and well executed; they form the best substitute for actual clinical demonstration of the operative procedure.

Manual of Medicine. By Thomas Kirkpatrick Monroe, M. A., M. D. Fellow of, and Examiner to, the Faculty of Physicians and Surgeons, Glasgow; Physician to Glasgow Royal Infirmary, and Professor of Medicine in St. Mungo's College; formerly Examiner in the University of Glasgow, and Pathologist to the Victoria Infirmary. 900 pages. Cloth, \$5.00. Philadelphia and New York, W. B. Saunders & Company; London, Bailliere, Tindall and Cox.

A hand-book dealing with the whole subject of internal medicine can do so but briefly and must conform pretty closely with others of a similar type. The work contains a brief synopsis of the different diseases, classified in the usual manner, and described under the familiar headings such as etiology, symptomatology, etc. No claim is made for any originality in the subject-matter, but the details are quite up-to-date, and the author believes that there is a demand for a book of this sort especially by students who require something more extensive than quiz compends and who have no time to devote to large systems of medicine. There are, however, numerous text-books of moderate size already in existence which fulfill this purpose admirably.

Tuberculosis: Recast from Lectures Delivered at Rush Medical College, in affiliation with the University of Chicago. By Norman Bridge, A. M., M. D., Emeritus Professor of Medicine in Rush Medical College; Member of the Association of American Physicians. Handsome 12mo volume of 302 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Cloth, \$1.50 net.

Although the title of this little work is "Tuberculosis," in reality it deals almost exclusively with the pulmonary affection, the other forms being but briefly considered. The subject is described in a systematic and instructive manner, the bacteriologic and pathologic factors are first detailed, and then the symptoms and physical signs are taken up in a very lucid and attractive manner, such as a good teacher would employ with his students. Prophylaxis and treatment complete the consideration of this disease. The book is especially intended for students but will be read with interest by many older practitioners.

The Practical Care of the Baby. By Theron Wendell Kilmer, M. D., Associate Professor of Diseases of Children in the New York School of Clinical Medicine; Assistant Physician to the Out-Patient Department of the Babies' Hospital, New York; Attending Physician to the Children's Department of the West Side German Dispensary, New York. 12mo. Pages 14-158, with 68 illustrations. Extra Cloth, \$1.00, net, delivered. Philadelphia, F. A. Davis Company, 1914-16 Cherry Street, Publishers.

This little book is not intended for the use of the practitioner himself as its details are not sufficiently extensive, but it is one that he can well **recommend** to an inexperienced young mother. It contains many valuable hints as to the care of the baby, in regard to how it should be bathed and clothed. Feeding is given due consideration and also the necessity of watching the action of the bowels and other functions. The latter part of the book contains a brief description of the principal diseases of young infants. This is set forth in plain terms so as to be easily understood by a lay person. Instructions as to what course to pursue in emergencies until the doctor can arrive are also given. There is a profusion of illustrations which saves much detailed description in the text.

Recent Additions to the Cleveland Medical Library

By purchase—Progressive Medicine, March, 1904; A Narrative of Medicine in America, by J. G. Mumford; Obstetrics, by J. Whitridge Williams; System of Physiologic Therapeutics—Vol. VII, Cohen's.

Donated by Dr C. A. Hamann, Gould's American Year-Book of Medicine and Surgery (Surgery Volume); Dr G. W. Crile, Blood Pressure in Surgery; Dr G. C. Ashmun, Practical Hygiene by C. Harrington; J. Whitridge Williams, A Sketch of the History of Obstetrics in the United States up to 1860; Mrs Guy B. Case, Genito-Urinary and Venereal Diseases by R. W. Taylor; Diseases of the Skin by Hyde and Montgomery; Diseases of the Skin by G. T. Jackson; Diseases of the Skin by H. Radcliffe Crocker; Diseases of the Skin by Malcolm Morris, and 66 Volumes various; Dr Maris Gibson, Secretary, Transactions of the Luzerne County Medical Society, 1903; Surgeon-General, Annual Report of the Surgeon-General of the Public Health and Marine Hospital Service, 1902; Transactions of the Section on Pathology and Physiology of the American Medical Association, 54th Annual Meeting, 1903; Dr Hunter Robb, 24 Volumes of Transactions of the American Gynecological Society, including Album of the Fellows of the Society.

Medical News

A. J. Leitch, of Niles, has returned from his western trip.

W. W. Pennell has removed from Frederickstown to Mt. Vernon.

An effort is being made to form a Medical Society in Erie County.

E. F. Wakefield, of Minerva, expects to locate in Cleveland within a short time.

Joseph A. Murphy succeeds the late Dr Lindsay as Coroner of Columbus.

G. T. Meek was appointed physician for the poor for the east district of Columbus.

The Fairfield County Medical Society will meet in the Lancaster G. A. R. Hall hereafter.

East Liverpool is actively engaged discussing plans for the management of a new City Hospital.

J. E. Myers, of Springfield, who has been to Cuba and other southern points for some weeks, has returned home.

Clifton Reedy, of Columbus, will, in all probability, lose the sight of one eye as a result of a diphtheritic infection.

Howard Johnson, an interne at the Cincinnati City Hospital, has invented a new hip-joint extension apparatus.

Karl Mantey, of Minerva, has sold his property and practice to Dr Davis, of Cleveland, and will locate in Florida.

The commencement exercises of the Ohio Medical College, Cincinnati, will be held on May 25. There will be 46 graduates.

H. A. Young, of Cleveland, has taken the offices of the late Guy B. Case, and will continue along the same lines of medicine.

E. P. Morrow, of Canton, has returned from New York, where he has been attending clinics at the various New York hospitals.

The Wood County Medical Society met at Bowling Green on April 6. J. C. Snyder, J. J. LaSalle and Dr Schrader presented papers at the meeting.

A meeting of the Sandusky County Medical Society was called on April 5 for the purpose of drafting suitable resolutions on the death of Howard Rabe, of Clyde.

The Ohio House of Representatives has passed Houck's bill providing for the appropriation of \$500 for each person bitten by a dog to defray expenses to a Pasteur Institute.

The physicians of Stark, Carroll and Columbiana Counties, centering at Minerva, have formed a protective association and established a "dead beat" list and a uniform minimum fee bill.

The Toledo Hospital Free Dispensary was incorporated on April 1 by Lewis K. Maxwell, W. A. Humphrey, Arthur T. Barnum, Nathan R. Simmons, Howland M. Fowler and Owen C. Rees.

Toledo has had a case of introbenzole poisoning. The chemical was used in a patent shoe polish, and it is asserted that the absorption took place from the cloth-top shoes to which it was applied.

The regular monthly meeting of the Lake County Medical Society was held at Painesville on April 5. John P. Sawyer, of Cleveland, delivered an address. The next meeting of the Society will be held on May 2.

Alexander Renick, of Chillicothe, was appointed to be a Trustee of the Ohio State Hospital for Epileptics in place of P. Maxwell Foshay, formerly of Cleveland, who resigned on account of his removal to Chicago.

Toledo made a contract some time ago for the disposal of garbage, yet the present Spring finds the same old methods still in practice. The Board of Health is being criticised severely for its negligence and inattention.

The Trumbull County Medical Society which has been defunct for the past five years has been reorganized. A temporary organization was effected by electing F. K. Smith, of Warren, President, and C. C. Williams, Secretary.

Of the six members of the Cincinnati Board of Health, not one is a physician. The Cincinnati Academy of Medicine has offered a very vigorous protest and proposes to have a physician elected to a vacancy which has lately occurred.

The third meeting of the Association of Assistant Physicians of the Ohio State Hospitals was held at Gallipolis on April 1. William H. Pritchard, of Gallipolis, was elected President; Paul W. Tappan, of Dayton, Vicepresident; Walter H. Buhlig, of Gallipolis, Secretary; F. D. Ferneau, of Toledo, Treasurer.

The Hardin County Medical Society held its annual meeting at Kenton. The following officers were elected for the ensuing year: President, R. L. Souders, of Ada; Vicepresidents, E. B. Heistand and E. S. Protzman, of Kenton; Secretary and Treasurer, H. D. Belt, of Kenton. The Society will meet again in June at Ada.

Deaths

R. H. Rabe, of Clyde, died recently in Philadelphia.

A. S. May, of Hastings, Michigan, died at his old home, near Wharton, recently.

E. P. Noel, formerly of Ohio, and a graduate of the Ohio Medical University of Columbus, died of tuberculosis, in Arizona.

After a long illness, Henry B. Eddy died at the home of his mother at Shadyside. He was 28 years of age, and a graduate of the Ohio Medical College of Columbus.

A. H. Hunt, one of the oldest physicians of Wooster, died suddenly, recently. He was a surgeon in the war of the Rebellion, and a physician for more than 25 years.

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Talma Operation for Ascites following Cirrhosis of the Liver, with Report of Cases

BY J. H. JACOBSON, M. D., TOLEDO

Surgeon to Lucas County Infirmary Hospital

The successful treatment of ascites, due to cirrhosis of the liver, is another achievement of modern surgery. Considerable confusion exists in the many contributions on this subject as to whom the real credit of the operation belongs. The credit has been divided by many writers between Talma,¹ of Utrecht, and Morrison, of New Castle on the Tyne, or it is given to one or the other alone, while still others attribute it to Thomas Lens.

It seems that to Talma belongs the credit of first having suggested the operation and upon this suggestion Thomas Lens (1892), a Holland surgeon, operated and reported,² and in this report mentions two other of his colleagues, Van der Meule (1889), and Schelky (1891), as having performed the operation, and further states that all credit should be given to Talma. All of Lens' cases terminated fatally. Drummond and Morrison³ (1896), in England, quite independently of Talma, recommended the operation, and first carried it to a successful issue. The operation was again recommended, with a report of a successful case, by Talma⁴ (1898), and Morrison soon after reported another successful case with comments on the procedure.

Both Talma and Morrison⁵ had observed on postmortem examination in cases of cirrhosis of the liver without ascites, that vascular adhesions between the liver and the parietal peritoneum were present, and that, in some cases, direct communication between the portal and systemic veins existed. They concluded that by these vascular adhesions nature had relieved the

obstruction in the portal circulation, and thereby prevented the formation of ascites. They then endeavored to produce similar adhesions by artificial means, and this they were able to accomplish readily on account of the relation of the blood-supply to the viscera and to the abdominal wall. The omental veins are branches of the right and left gastroepiploic veins which help to make up the portal; whereas the veins of the abdominal wall are principally the epigastric and umbilical veins emptying into the iliac, intercostal and mammary veins, parts of the systemic venous system. Therefore, the formation of vascular adhesions between the omentum and parietal peritoneum would give a new communication between the portal and systemic veins and thereby relieve obstruction to the blood flow in the portal circulation, which may be present as a result of atrophic cirrhosis of the liver.

Experiments have shown that direct anastomosis of the portal vein with the vena cava is followed rapidly by death, but if the blood is diverted partly, or gradually, the animal tolerates it very well. The experiments of Eck⁶ are interesting in this connection. He anastomosed the portal vein with the vena cava in eight dogs, seven of which died within a week, and one lived two months; the ultimate outcome of this experiment was lost. Hahn⁷ repeated the experiments on 60 dogs. Forty of these died of wound complications, while those that lived for a length of time passed through a stage of excitement, and if animal food was given them they developed a nervous irritation which terminated fatally. The explanation of the disastrous results of the experiments was that the intestinal blood acted poisonously to the economy when introduced freely into the general circulation.

The experiments of Koutnietzov⁸ showed that dogs die rapidly when the portal vein has been ligated without previous fixation of the omentum. Complete or incomplete ligation of this vessel is borne perfectly well if the omentum has been previously fixed to the abdominal wall.

Anatomic communications between the portal and systemic veins⁹ exist normally and are given as follows: Branches of the inferior mesenteric vein inosculate with branches of the internal iliac; between the gastric and esophageal veins, which empty themselves into the vena azygos minor between the left renal vein, and veins of the intestine; between the veins in the round ligament of the liver and the portal vein; and between the superficial branches of the portal and phrenic veins. It is

these branches of communication between the two systems which become enlarged in some cases of obstruction to the portal vein and accounts for the so-called *cured* cases of cirrhosis of the liver, and likewise accounts for the absence of ascites in some of the cases.

The question which naturally arises in a consideration of this subject is as to what causes the ascites. The consensus of opinion among pathologists and internists is that the compression of branches of the portal vein by the newly-formed fibrous tissue of cirrhosis is the direct and all-important cause, and that ascites occurs in about 80% of all cases of atrophic cirrhosis. The relation between peritonitis, hepatitis and cirrhosis in the causation of ascites is not clearly understood; some believe that peritonitis is the most important factor, while others ascribe to cardiac insufficiency an important rôle. Changes in the peritoneum occur in all cases of ascites of long standing. Clinical results of omental fixation seem to prove, without question, the importance of portal obstruction as the causative factor, while the importance of peritonitis in the late stages must not be forgotten.

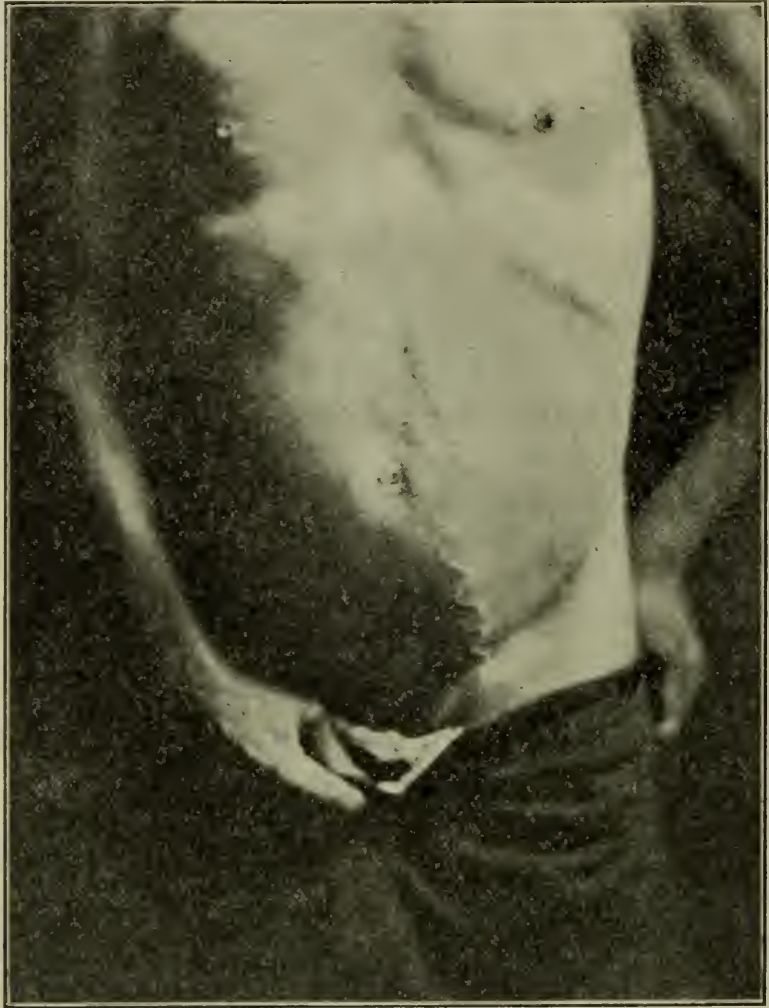
It should be remembered that the operation is not intended to cure the cirrhotic process in the liver, but that it is primarily intended for the relief of its most distressing complication, ascites. The success of the operation depends wholly on the retention of a sufficient quantity of normal liver cells, so that when the portal obstruction is relieved by the anastomotic circulation, sufficient liver tissue remains to carry on the functions of the liver.

This is obviously met with in the early stages of the cirrhotic process, and it is for this reason that the operation has been recommended early in the disease, thereby anticipating the ascites and preventing its formation. Murrell¹⁰ believes that the operation is best performed in the preascitic stage, when the diagnosis rests on an alcoholic history, hematemesis and enlarged liver.

One of the difficulties in estimating the value of the operation from the published reports is that it has been performed for conditions other than for the ascites due to atrophic cirrhosis of the liver. Of 105 cases collected by Greenough¹¹ 42% improved and 58% did not. The mortality within 30 days was 29.5%. Nine cases improved in health after two years.

G. Alexandre¹² collected 107 cases from the literature and added thereto three cases of his own and gives the following

results: Of the 107 cases, 54% were cured, 32% died and in 14 cases the results were unknown. Of his own cases, two died 11 days after the operation, and one three months after, without a return of the ascites. He gives the results as being much better in the hypertrophic than in the atrophic forms. In the former, 70% were cured with a mortality of 15%, while in the latter the mortality was 41%. Greenough also mentions this fact,



Case of Talma operation, one year and three months after, showing enlarged abdominal veins.

stating that the cases in which the liver was enlarged gave a lower death-rate and higher percentage of improvement than did the cases of atrophic liver.

Packard and LeCounte¹³ tabulated 20 cases giving the operative mortality from 7 to 23%, and the recovery rate between 41 and 64%. Torrance¹⁴ gives the statistics of 26 cases, of which 10 were cured, or 38.47%. Lanz¹⁵ collected 69 cases with 24 cures. Carini¹⁶ collected 63 cases and reported 25 cured, seven

improved, nine not affected, and 22 as having died. From these statistics it will be seen that the percentage of improved and cured varies from 38.47%, the lowest, to 54%, the highest. These statistics are made up largely of the same case reports from the literature, each writer adding a few cases of his own. In averaging up the results as given by these writers, we obtain 49.08% cured or improved.

Keen and Fisher,¹⁷ Neilson,¹⁸ Hildebrand,¹⁹ and Scherwincky,²⁰ have reported cases well after two years. Scherwincky's case, a woman, became pregnant after the operation.

The operation has also been made in other forms of ascites and in hypertrophic forms of cirrhosis without ascites. Clemens²¹ reports a case of operation for ascites due to cardiac disease and relates the successful cases of similar nature operated upon by Bunge, Frank and Hess. Rosenstirn²² gives a valuable contribution to the subject in which he reported two cases of ordinary hypertrophic cirrhosis without ascites operated on by the formation of adhesions between the gall-bladder, liver, omentum and the parietal peritoneum. Both cases were followed by good results. Rosenstirn can give no definite explanation for the cure, but believes that the operation neutralizes a toxin which is furnished by the liver in this disease.

The names of epiploexy, omentopexy, omental anastomosis, omental fixation, are the names which have been given to the operation, besides those of the originators,—Morrison and Talma. The technic of the operation is a very simple one, and varies somewhat to suit the individual case. The question of anesthesia is important, as these patients, being alcoholics, do not bear anesthetics well. The ideal anesthetic, theoretically at least, is the local one, cocain, and whenever possible it should be employed. Usually, however, it will be found necessary to employ ether before the operation is finished. In the vast majority of cases, general anesthesia by ether narcosis will be found best. An incision is usually made in the median line above the umbilicus, which incision should be long enough to give free access for the work to be done. The ascitic fluid should be removed as much as possible with the aid of sponges. The liver should be carefully inspected and the diagnosis verified.

The essential feature of the operation is to unite the omentum to the parietal peritoneum with as broad an area of adhesion as is possible, the wider the better. The omentum is next brought into the incision and is rubbed with dry gauze sponges and scarified.

A corresponding area on the parietal peritoneum should next be prepared in a like manner and the two united. As a rule it is an easy matter to pick up the omentum; rarely, however, this may be difficult, especially in those cases in which the omentum is small and retracted from constant pressure of fluid and in cases in which the fat elements have been absorbed, leaving only a thin network composed of peritoneum and blood-vessels. This occurred in one of my cases. (Case 2.)

The adhesion may be made to form simply by rubbing the surfaces to be apposed with dry gauze sponges, by scarification, or both. In the earlier operations it was recommended to scarify the surfaces of the liver, spleen, and gall-bladder, so as to produce adhesions between those organs and the parietes. This is not necessary to the success of the operation, but when practicable it may be done. A "cirrhosis brush" has been devised by Morris²³ for this purpose. It consists of an ordinary tooth brush on a long handle with bristles made extra stiff. With it the dome of the liver, diaphragm, and upper surface of the spleen can easily be reached and scarified. An ordinary tooth brush on a long heavy clamp can be improvised for the same purpose, care being taken however to sterilize the brush by antiseptic solutions instead of boiling, so as not to soften the bristles.

Silk is the best material for suturing the apposed surfaces, and this is best effected by interrupted stitches. After the approximation has been completed, the abdomen is closed without drainage. It was at first thought that drainage was essential to the operation, but on account of the increased danger of infection it should be, and has been, abandoned. The case reported by Weir²⁴ in which the patient died from peritonitis, the result of infection through the drainage tube, is a striking example of this danger. It is far better and safer to resort repeatedly to paracentesis after the operation than to leave a drain.

Tapping after the operation will, as a rule, be found necessary. It is obvious that for the new formation of blood-vessels in the adhesions, some time must necessarily elapse, during which time the ascitic fluid is likely to reaccumulate, and this must be removed whenever it becomes excessive. Broad adhesive straps to support the incision and to hold the apposed surfaces more firmly together are applied at the completion of the operation. Craig²⁵ reports a case in which he used a unique method of operation, a method which possesses value. In his

case, a woman, the parietal peritoneum was separated in all directions at the lower angle of the incision for about two inches; the omentum was stitched into this pocket and the abdominal incision closed. Relief from symptoms was absolute. By this technic the author avoids multiple adhesions between organs and parietes. The incision is made in the lower half of the abdomen, thereby preserving the function of the omentum as a protection to the viscera.

The prognosis in cases of atrophic cirrhosis is bad. A few spontaneous cures through the establishment of the collateral circulation have been reported, but such an outcome is hardly to be expected in the vast majority of cases. Cases of cure of ascites after repeated tapplings have also been reported, the explanation being that the tapping predisposed to the formation of adhesions between the omentum and peritoneum, and the ascites disappeared through the establishment of this communication between the portal and systemic veins, just as we obtain it by direct omental fixation.

That the disease is a progressive one tending toward death, and that we possess no means of stopping the formation of fibrous tissue in the liver, is well known. In the early stages the avoidance of alcohol with proper dieting are said by some authorities to stay the process of destruction in the liver cells and the formation of new fibrous tissue. If then in the early stages of the disease we combine with the interdiction of alcohol and proper dieting, the Talma operation, it seems probable that the disease can be arrested.

CASE I: (Medical Record, September 21, 1901.) The patient, a male, aged 45, laborer, was admitted to the Lucas County Infirmary Hospital on June 5, 1901, with a history as follows: The family history is negative; he has had the usual diseases of childhood, and during an attack of scarlet fever had otitis media which has greatly impaired his hearing. He denies having had syphilis, but admits that he suffered from gonorrhea 10 years ago. He has used beer and whiskey in large quantities. He also suffered from attacks of renal colic six years ago, and passed some stones through the urethra.

Concerning his present illness, he stated that during the fall of 1900 he first began complaining of distress in his stomach after eating, with pain in the region of the stomach, accompanied by headache and severe diarrhea. This diarrhea continued until the spring of 1901. About six weeks before his entrance to the Hospital he first noticed some swelling of his feet. This progressed rapidly, extending up the entire lower extremity. The abdomen then became swollen and enlarged to a considerable size. Under treatment this disappeared for a time, but reappeared later. Examination of the patient revealed a well-developed individual, presenting no emaciation; the pulse was 80 and

irregular; the temperature was normal. Edema of the lower extremities was present and the abdomen was enlarged. The heart's area was increased to the left, and its sounds were irregular but clear. The abdomen presented typical signs of fluid, with great distention. There were no enlarged veins. The liver could be felt about three finger-breadths below the costal margin and was hard and firm. The spleen was not palpable. A small umbilical hernia was present. The urine was found to be normal on examination, but later a small quantity of albumin was noted.

The diagnosis was established as cirrhosis of the liver. Cathartics and diuretics were administered and the ascites and edema gradually disappeared, so that the patient left the Hospital in 10 days. He reentered the Hospital on June 25, 1901, when, on examination, the abdomen was again found distended with fluid. The operation of suturing the omentum to the parietal peritoneum was made on June 28, 1901. General anesthesia, beginning with chloroform and continuing with ether, was employed. An incision about four inches long was made in the median line above the umbilicus. On opening the peritoneal cavity considerable ascitic fluid escaped. Exploration of the abdomen verified the diagnosis of cirrhosis of the liver, that organ being found greatly enlarged, hard, firm, and roughened on its under surface. The peritoneum on either side of the incision for a distance laterally of about three inches was vigorously rubbed with dry gauze pads and then scarified. The omentum was then stitched to the peritoneum on both sides of the incision by continuous catgut suture. In closing the abdomen some of the omentum was included in the lower part of the wound. The patient did not stand the operation well and required repeated stimulation. On examination 24 hours after the operation the edema and ascites were found to have entirely disappeared. The patient did very well until the evening of the sixth day, when he became comatose, and died the following day, seven days after the operation, the cause of death being evidently toxemia or uremia.

Postmortem examination showed the following condition: At the site of the operation there was complete adhesion of the omentum to the abdominal wall. The left ventricle of the heart was hypertrophied; the liver was typically cirrhotic, the spleen congested; the left kidney was contracted and contained two small stones; the right kidney was contracted but larger in size than the left one; the right ureter was thickened and dilated and contained an impacted stone near its vesical orifice.

The two chief points of interest in this case were (1) the rapid disappearance of the ascites and edema after the operation. One week was too short a time for vascular adhesions to form between the omentum and peritoneum, and the rapid disappearance of the fluid cannot be explained in this manner. The absorption evidently took place as a result of the extensive scarification of the omentum and peritoneum, these structures thereby being led to take up the fluid more readily. (2) The death of the patient was from toxemia or uremia, the result of his contracted kidneys.

CASE II: Mr B., aged 62, was seen first on October 22, 1902, with Dr H. E. Smead, of Toledo; family history negative; the patient had smallpox when 20 years of age. He denied venereal infection. As a rule he had enjoyed excellent health. He had been a steady beer and whiskey drinker for about 25 years. The patient had been under Dr Smead's care

for the past three months and when first observed his feet were swollen and the abdomen was greatly distended; he had been tapped four times during this period on the following dates: August 18, September 18, October 9, October 21; great quantities of fluid were evacuated at each tapping. He stated that he first noticed swelling of his feet in March, 1902, and that soon after his abdomen became enlarged. Otherwise he has been perfectly healthy, has had no disturbances of digestion and stated that, were it not for the inconvenience of the abdominal distention, he would be well. Examination of the patient revealed a well-developed individual, presenting some emaciation, the cheeks and face shrunken. The lungs and heart were normal. The liver dulness began at the fourth rib, but its edge was not palpable. The abdomen was greatly distended. The veins in the abdomen were visible and the signs of fluid were very distinct. There was considerable edema of the lower extremities.

On October 27, 1902, he was operated on at St. Vincent's Hospital and an omental fixation was made. An incision was made above the umbilicus in the median line, the abdomen was opened and a large quantity of fluid evacuated. Exploration of the abdomen revealed a typical atrophied, cirrhotic, hob-nailed liver. The omentum was found contracted and atrophied in the upper posterior part of the cavity, it was pulled forward with some difficulty, rubbed with dry gauze sponges and scarified. A corresponding area on either side of the incision was likewise prepared and the two united with interrupted silk sutures. The abdomen was closed without drainage, and adhesive strips applied for support. Chloroform was the anesthetic used. The patient bore the operation well, comparatively little shock resulting.

The ascitic fluid returned shortly after the operation, producing so much distention as to pull apart a small portion of the wound and permit a leakage which continued for three days. Tapping was resorted to, and repeated at intervals of about four weeks for a period of five months. The fluid gradually diminished in amount until at the last tapping, in March, 1903, only two quarts were removed. The patient's general condition became much improved, so that he was able to return to light work in a machine-shop.

A recent examination, one year and three months after the operation, reveals him in good health. The veins on the abdomen are very prominent, especially the epigastric and umbilical veins which are very much enlarged. The liver is palpable. Some fluid is present in the peritoneal cavity but is too small in amount to cause trouble and can only be determined by percussion. He states that he feels well and that he works every day, walking a distance of two miles to and from his work.

CASE III: The patient, a male, aged 46, occupation butcher, entered the Lucas County Infirmary Hospital April 6, 1903. He has had the usual diseases of childhood, and as a rule has enjoyed good health, with no serious illnesses of any kind. He denies syphilis, but has had gonorrhea. He has been an excessive user of alcoholic drinks for the past 20 years. His present illness dates from about three months previous to his entrance to the Hospital, when his feet became swollen. His appetite at that time was bad and his digestion poor with occasional attacks of vomiting. No hematemesis was present. About a month ago his abdomen became greatly distended and enlarged, interfering with his breathing and walking. He

has been obliged to remain in bed ever since. He has grown progressively weaker, with continuous loss of flesh. On examination his condition was as follows: The patient presented an emaciated appearance, with skin subicteric in color. Panniculus was very scanty. The pulse was 85; temperature, normal. The abdomen was greatly enlarged; the feet were swollen. The examination of the lungs gave negative results. Over the heart a systolic murmur could be heard transmitted toward the axilla. The heart boundary was difficult to outline on account of the extreme distention of abdomen. The urine was normal, though diminished in amount.

The abdomen was greatly enlarged, bulging forward from the ensiform to the pubes. Fluctuation was very pronounced. Paracentesis was done and the fluid was removed, after which the liver was freely palpable and found to be slightly roughened at its border. A diagnosis of hepatic cirrhosis, mitral insufficiency, ascites and general edema was made. Diuretics and purgatives were administered. The fluid in the abdomen reaccumulated very rapidly, necessitating frequent tapings at intervals of about two weeks. On May 19, 1903, a Morrison-Talma operation was performed. The operation consisted of an incision in the median line above the umbilicus about six inches in length. On opening the abdomen great quantities of ascitic fluid escaped. The liver was found to be enlarged, hard and nodular on its under surface, and some granulations were present on the upper surface. It presented the appearance of a syphilitic liver. Scarification of the parietal peritoneum and omentum by multiple fine incisions was made, and the omentum was stitched to the peritoneum by cat-gut sutures. The abdomen was closed without drainage.

The after-effects of the operation were good as to the immediate recovery, there being but little shock. The ascitic fluid reaccumulated rapidly, necessitating frequent tapping. These tapings were made at intervals of about two weeks, large quantities of fluid being removed at each sitting. This was continued for about five months, the fluid remaining the same in amount, but the tapings were made at somewhat longer intervals. The patient left the hospital after the operation and returned for the tapings, and expressed himself as feeling good. On October 15 the patient was found dead in his bed, having died sometime during the night from some indefinite cause, probably his heart lesion. No post-mortem examination was obtainable.

CASE IV: The patient, a male, aged 51, occupation cook, entered the Lucas County Infirmary Hospital on July 24, 1903, with a history as follows: His father died of Bright's disease, and his mother is alive and well. He had the ordinary diseases of childhood. He suffered from malaria at 18 years of age. He gave an indefinite history of rheumatism for the past 10 years, but there were no acute attacks. He denies venereal infection. He has been a steady drinker of alcohol, very often to excess. The patient related that about three weeks ago his abdomen began enlarging, and at the same time he had pains in both sides of abdomen, and noticed a slight yellowness of the skin. The bowels were regular. At times his appetite was poor. Examination revealed a short, heavily built individual, presenting no emaciation. The skin of the face and the sclera were slightly jaundiced. Both legs and feet were edematous. Examination of the lungs was negative. Over the heart a slight systolic murmur was heard and there was some increase in the heart's area to the left. The

abdomen was very much enlarged, and fluctuation and movable dulness in the flanks was very distinct. A diagnosis of cirrhosis of the liver, ascites and probable mitral insufficiency was made. The patient was tapped about once a month for three months.

On September 7, 1903, a Morrison-Talma operation under ether anesthesia was performed. The incision was made in the median line above the umbilicus. The abdomen was found to be filled with straw-colored ascitic fluid. The liver was decreased in size, of a reddish-blue color, hardened and very rough on its upper surface. The surface of the liver and spleen and under surface of the diaphragm were rubbed vigorously with a stiff tooth brush. The omentum and parietal peritoneum were scarified with the scalpel, and the omentum was attached to the abdominal wall by interrupted silk sutures over an area about the size of the hand. The abdomen was closed, no drainage. The patient did not do very well after the operation, the temperature immediately after, and for the two succeeding days, being subnormal, 96.4°. His mind was in a somewhat confused state. He became delirious about the second day after, and on the fifth day became comatose and died, death evidently having taken place from toxemia due to some unexplainable cause. No postmortem examination was obtainable.

Of the cases herewith reported three died and one is still living. One died from uremia, one from toxemia, and one from unknown causes. Two died within a week after the operation and the other about five months after, somewhat benefited, perhaps, by the procedure. As to the forms of cirrhosis operated, one was for ascites due to the hypertrophic form, one for syphilitic cirrhosis with ascites, and two for atrophic cirrhosis with ascites. The surviving case is a striking example of what can be accomplished by omentopexy, and such good results have established the operation as one of great value.

I deduce the following conclusions from what has been said in the foregoing:

1. The principal cause of ascites in cirrhosis of the liver is the obstruction to the portal circulation.
2. The percentage of cures or improvements following the operation is about 49.08%.
3. The operation has been of benefit in cases of hypertrophic cirrhosis without ascites and promises some hope in cases of ascites due to cardiac disease.
4. For the success of the operation it is necessary that a sufficient number of normal liver-cells be present.
5. The operation should be performed early in the disease, in anticipation of ascites, before serious complications have taken place.
6. Simple scarification of the omentum and a correspond-

ing area on the parietal peritoneum is sufficient to secure success. Scarification of liver, gall-bladder and spleen is not essential.

7. The dietetic treatment of the patient should be continued after the operation and alcohol in every form strictly avoided in the hope of stopping the destruction of liver-cells and the formation of cicatricial tissue.

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Chronic Prostatitis

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When one considers that until the early part of the nineteenth century chronic prostatitis was practically unrecognized, it is not to be wondered at that even at the present time the affection is completely ignored by the average medical practitioner. Undoubtedly the study of the uterus and its appendages is a most important one, but, for that reason, the prostate and its appendages should not be slighted or neglected, and their treatment made a source of revenue for advertising quacks and charlatans.

The importance of this class of cases can be somewhat appreciated when one considers the great number of sexual neurasthenics, the cases of insanity directly or indirectly due to sexual aberrations, and the amount of misery and unhappiness caused, both to the individual, the family, and society.

The symptoms and complications resulting from prostatitis

are such as to be in some cases unendurable, and the subject, unless he finds relief, may be driven to suicide. It will be necessary, considering the time allotted to me this evening, to allude only to the most important features of the affection.

The causes may be classed as predisposing and exciting. Among the former may be mentioned excessive masturbation, sexual, diatetic and alcoholic excesses, sexual excitement without gratification, constipation and other rectal diseases, excessive bicycle or horseback exercise, exposure to cold, prostatic hypertrophy, urethral stricture, gouty and rheumatic diathesis, and last, but not least, "coitus interruptus," the use of condoms, etc., which are mentioned only to be condemned. Some of the exciting causes are infections, such as gonorrheal, tubercular and pyogenic, clumsy instrumentation of the urethra, especially if infection be present, and possibly from repeated applications of strong irritants to the prostatic urethra. The consensus of opinion at the present day is that gonorrhea is, in most instances, the cause of chronic prostatitis. Zeller and Littrè, in the beginning of the eighteenth century, maintained that all gonorrheas represented disease of this gland. The frequency of posterior urethritis varies from one-sixth of all cases (Leprovost) to 93% (Dind). Finger found it more frequent in dispensary work (82%) than in private practice (63%); and according to VanderPoel nearly 40% in 191 cases, dispensary and private. Finger believes that every case of posterior urethritis is accompanied by prostatitis. Frank recently found that of 210 cases of posterior urethritis all suffered with prostatitis. Greene (*American Journal of Surgery and Gynecology*, December, 1902) gives the results of the study of 214 unassorted cases of urethritis. The posterior urethra was involved in 66%, and examination of the prostate showed enlargement in 47%. He also says: "What becomes eventually of these swellings of the prostate, it would be interesting to know; as to whether the prostate entirely returns to its normal condition or not; I am personally inclined to believe that in many cases these swellings do not entirely disappear. Further data also, as to the average normal size of the prostate, than are at present at hand, would help us in revealing some of the many mysteries connected with that organ. Certainly, also, the accumulated evidence of observers during the past ten years, of urethritis in the male (with the exception of those gentlemen who publish statistics, which tend to demonstrate that it [gonorrhea] is an ephemeral disease which can be cured by a few irrigations), tend to show that, as in the female, it is a serious affection, prone to involve tissues of the body much deeper than those in which it originated."

We may consider first the different clinical varieties. The most common is that which develops in men under middle age as a rule, and in which we can almost always obtain a history of a gonorrhea, recent or remote.

The occurrence of symptoms pointing to involvement of the deep urethra or bladder, or of an epididymitis, would be undoubted evidence that the prostate was involved. The position held by some authors that the prostatic urethra may be the site of a gonorrhea without infection of the prostate, is not tenable in the light of recent clinical and pathologic developments.

It has also been shown that when a prostate has once been attacked with gonorrhea, although all symptoms of the disease may have passed away, the gonococci are still present, although latent, and may in some cases produce infection in the female, although the male may be healthy to all intents and purposes. Beside the history, we have the subjective symptoms to assist us, although they may be completely absent in some cases. The most prominent among them are fullness and voluptuous sensations in the perineum, pain, sometimes sharp and neuralgic in character, but more often dull and usually referred to the perineum or the under surface of the glans penis. It may be reflected, radiating into the groin, testicles, thighs, etc. There are sometimes present paresthesia and hyperesthesia of the perineum, as well as a painful scalding sensation, or positive pain during ejaculation, which may be premature and feeble. Symptoms referable to the vesical neck are usually present, which have been erroneously referred to as cystitis, vesical neuralgia and hyperesthesia, urethral stricture, stone in the bladder, etc., and which consist in frequent and sometimes painful micturition, the pain being most marked at the end of the act, and sometimes accompanied by the passage of a few drops of blood. Prostatorrhea is a very usual accompaniment of prostatitis, and may be the only symptom present. After straining at stool, or after urinating, a mucoid discharge shows itself at the meatus, which may be present in quantity from a few drops to perhaps a dram. This has been erroneously called spermatorrhea, and the patient's mind may be very much disturbed by worrying over his seminal losses. It is rare, however, that the discharge contains spermatozoa, and consists usually of mucus and epithelial debris, and pus cells when infection is present. Gonococci are frequently found, although perhaps in small numbers. In most cases sexual hyperesthesia will be a prominent symptom, and sometimes nocturnal (and rarely diurnal) emissions are present. On the contrary, in some cases impotence will be complained of, and lack of sexual desire.

Sometimes the symptoms will be referred to the anus or rectum, and the diagnosis rendered thereby somewhat obscure. This form of the disease which we have just considered is sometimes called chronic follicular prostatitis.

Another clinical variety of the disease is that which occurs in men, at or beyond middle life, who are frequently high livers, and are subjects of the gouty or rheumatic diathesis. Such patients commonly give a history of sexual excesses and venereal disease in early life, and give evidence of hypertrophy of the prostate. Usually in these cases the pain and vesical symptoms may be very annoying, but there is usually absent the mental disturbance which occurs in younger subjects from the fear of impending impotence. Although the prostatic hypertrophy may in some of these cases act as the chief causative factor in a chronic prostatitis, it is undoubtedly true that such hyperemia or chronic inflammation is frequently the cause of prostatic enlargement. The variety just considered is often called chronic diffuse or interstitial prostatitis.

The diagnosis of the affection is comparatively simple in most cases, although occasionally it may be obscure. The history of a recent or remote gonorrhea, attended with symptoms indicating involvement of the deep urethra, evidence of change of size and form as ascertained by rectal palpation, the presence of pain in the perineum, with mild vesical symptoms, and, above all, the presence of prostaticorrhea, and examination of the secretion, will usually make the diagnosis clear. It is very important that an effort be made to express the secretions of the prostate. This is accomplished preferably by digital compression applied per rectum, and ordinarily known as massage of the prostate. The patient is first instructed to pass the urine in a glass, leaving a very small quantity in the bladder; then, with the patient in the genupectoral position, or standing with the body bent forward at right angles, the size and consistency of the gland is noted, as well as areas of tenderness, after which it is subjected to a stripping from the base to the apex, sufficient caution being exercised, as complications such as epididymitis have been known to follow the operation. Frequently, during or right after the manipulation, a mucoid material will present itself at the meatus, but I usually instruct the patient to pass the urine still remaining in the bladder, which will contain the secretion, if any be present. Microscopic examination of the discharge will demonstrate it to consist mostly of epithelial debris and pus cells, and occasionally a few dead spermatozoa. There is a popular notion among the laity, as well as some physicians, that this discharge is a spermatorrhea. It is rare, however, that such is the case.

There is, perhaps, no class of cases which require more tact and judgment as regards management and treatment than chronic diseases of the male sexual organs. In younger men particularly, we are called upon frequently to treat a neurasthenia rather than a gleet or prostatitis. Is there anything more trying than a sexual neurasthenic? How assiduously he milks the urethra to find the "morning drop," which may exist only in his mind. How he searches every day for the deadly threads in his urine. What stupendous importance do a few enlarged veins on the left side of the scrotum assume in his eyes; or an occasional seminal emission, bringing to his mind's eye visions of impotence and sterility. Instead of the sexual act being a means to an end in the great scheme of perpetuation of the species, it becomes the chief end and aim of existence, and the sexual organs constitute a centrum around which his earthly existence revolves. Although it is seldom that resolution in a prostatitis absolutely and completely occurs, still the patient, in most cases at least, can be symptomatically cured. Of course regulation of the habits of the individual, as regards diet, drinking and sexual matters, is important. Sexual intercourse may be permitted in moderation, unless the symptoms seem to be aggravated by it. Tonic treatment is usually indicated especially in neurasthenic conditions, and in cases in which sexual hyperesthesia is present, anaphrodisiacs will be indicated. The passage of the cold steel sound (full size) twice a week will frequently produce marked benefit. Deep urethral injections or instillations into the prostatic urethra with a Keyes-Ultzmann syringe are usually indicated. Argentum nitratis in weak solution, beginning with $\frac{1}{2}\%$ solution and gradually increasing, or thallin sulphate 10%, or fluid extract of hamamelis, can be applied in this way. I have found cocain (2 to 4% solution) applied to the prostatic urethra very beneficial in relieving pain and vesical symptoms. Counterirritation of the perineum by tincture of iodine or cantharidal collodion is frequently of great benefit. Sitz baths and hot rectal enemata are often beneficial. Much good can be accomplished by irrigation of the urethra and bladder, using a short nozzle, either with potassium permanganate, nitrate of silver or bichlorid of mercury, in weak solution. Not less than a quart of the solution should be used, and it should be comfortably hot. This may be done every day; but the main reliance in the local treatment of chronic prostatitis should be placed upon massage. Each seance should not last over two minutes, and should occur not oftener than every second day.

Report of a Case of Malignant Endocarditis

BY WILLIAM O. OSBORN, M. D., CLEVELAND

The patient, F. E., a farmer, aged 43, presents a history of the usual children's diseases, and one attack of grip about seven years ago. He never had any other sickness until last spring, when he was ill with a fever, pronounced malaria at first, but later typhoid.

He was confined to the house for about a month, and later, while he could not do the hard work he had been accustomed to, he managed a farm during the summer. In November he was obliged to go to bed again, more on account of weakness than anything else. He lost in weight from 153 to 136 pounds during the summer.

I saw him first December 15, 1903, at 7:30 p. m., after a journey of 70 miles by rail and transit to Charity Hospital in an ambulance. He was emaciated and anemic, but without icterus, cyanosis or marked lymph-gland enlargement. His tongue was clean and a little dry. He lacked any opposing molar teeth and most of his incisors were out. His temperature that evening was 100°; the pulse was 94, occasionally irregular in force, more frequently so in rhythm. Its tension was very low, and there was a marked dicrotic wave near the base of the anacrotus or in the trough between the waves. The area of heart dulness was not enlarged, but a rough blowing systolic murmur was heard at the apex and in toward the sternum. It was also heard, but less intensely, in all cardiac areas and well around to the left side and in the left interscapular region. There were a few enlarged lymph glands in the groins, and a small one in the left axilla. The arterial wall was slightly thickened, and there was no edema. The lungs and abdomen were negative. A soft diet was ordered.

The next morning with the first few deep breaths, a few crepitant râles were heard at the base of both lungs. Examination was otherwise as negative as that of the evening before. The temperature was 99° and the pulse still dicrotic. He looked worn and greatly depressed. The urine showed a trace of albumin, but no casts were found.

During the next week his temperature varied from 97° to 102.6°, the exacerbations being in the evening, and the pulse varied between 68 and 106, and was always dicrotic. The cardiac signs remained the same. Liquid nourishment was taken and well digested. Repeated examinations of the blood were made, all

yielding negative results as to malarial plasmodia, Widal reaction, and any marked change in relations or forms of corpuscles. The diazo reaction was not found in the urine which continued to show the same slight trace of albumin.

I had never seen a case of septic endocarditis, but suspecting that this was one, wrote to the physician who had treated him in the spring, and learned the following facts: He had first seen the patient, after a hard chill, on the eighth of May. There was a history of previous nose bleed. The pulse was peculiar, although the low tension did not appear until later. He found tenderness in the right side, and slight enlargement of the spleen. A few rose spots developed in the course of time. It was not a typical case of typhoid, and there were not enough symptoms of any other disease to warrant any diagnosis. His latest notes were simply of the patient's general condition about May 28 and again in July. He used acetozone freely, and the temperature kept down.

With reference to the systolic murmur, he wrote later: "If Mr E. had a systolic murmur, I don't remember it, and as I try to make note of all such conditions, I feel quite sure it was not noticed at the time of my first examination. I do remember that a slight thrill was found at a later date which I told him, if I recollect, was due to a hemic murmur, as he was quite anemic." I judge from what the patient told me that other physicians who saw him during the summer and fall noted the murmur, but explained it to him as part of his general run-down condition.

The patient's course was constantly downward. There were several attacks of diarrhea without apparent cause. These were usually checked by some simple remedies and care in diet. Occasionally joint pains and muscular pains were complained of, sometimes sudden in onset, and once or twice there was a sudden pain in the left hypochondriac and umbilical regions suggestive of splenic infarct; but, on the whole, no marked symptoms developed which could not be accounted for by the fever, emaciation, and loss of strength.

Dr C. F. Hoover saw the patient in consultation sometime in January, and confirmed the diagnosis. He advised the administration of caccodylate of sodium hypodermically for a period in doses of four grains daily. For a few weeks following this consultation, during the administration of the caccodylate, the patient seemed somewhat encouraged and brightened up. He was for two or three periods of five or six days each without elevation of temperature above 99°. His urine showed a trace of albumin

constantly, and a few hyalin and granular casts, but there were no marked evidences of irritation of the kidney associated with the administration of the caccodylate.

He failed rapidly after February 10, losing what little appetite he had had, and died of asthenia on February 27. Dr Schultz made a postmortem examination a few hours later. It showed a patch of fresh vegetations $\frac{1}{2}$ by $\frac{3}{4}$ of an inch in area on the inner wall of the left auricle extending down on the auricular surface of the inner leaflet of the mitral valve. On the inner surface and free edge of one of the aortic valves was an old, firm, fibrous nodule, the size of a pea. No infarcts were found in spleen, liver or lungs, although there were a few well-marked areas of congestion in the lungs. The kidneys showed only cloudy swelling. Cultures and smears from the heart's blood and vegetations showed no microorganisms.

Ethyl Chlorid as a General Anesthetic

BY SECORD H. LARGE, M. D., CLEVELAND

Ethyl chlorid was first used as a general anesthetic about the year 1850 by Snow,¹ Heyfelder, and Sir B. W. Richardson. From what we can learn by searching the literature of that time, it seems to have had a very short life. Forty-five years later Carlton, Director of the Dental Institute in Gothenburg, reported that he used it for extraction, and during the next two years the dental journals published and commented favorably on its use in several thousand cases. Within the last 12 months it has again been very extensively used in Europe by the medical and dental profession.

In looking over the literature on general anesthetics, we find great differences of opinion as to which is the safest and most reliable, **but** the following classification seems to be the most general: Nitrous oxid, ethyl chlorid, ether, and chloroform. Nitrous oxid is considered to be the safest we have. H. C. Wood² has been unable to find more than four deaths recorded up to 1900. Hewitt³ was able to trace 17 deaths due to its use, while Buchanan⁴ reports one in 750,000. Ethyl chlorid, according to Dr S. Iglaurer⁵ is placed next to nitrous oxid, as regards its usefulness as an anesthetic. Seitz,⁶ of Constanx, a dental surgeon, collected over 16,000 cases with only one death from its use, and in this case the patient had a fatty heart and sclerosed

coronary arteries. Ware⁷ has had one death in 13,000 cases, while Luke⁸ used it in 300 cases with no deaths. Lotheissen⁹ reports one in 17,000. We personally have used it in over 100 cases without any bad results. Ether, according to Cushing and Meyer, has a death-rate of one in 12,000. Statistics from translations of the German Surgical Congress give one death in 5,090. Bouffleur quotes 500,000 cases with a mortality of one in 16,768. There are a number of deaths caused indirectly by its use, as in postoperative pneumonia. I have often thought that a number of these cases of pneumonia may have been caused by the transferring of the patient from a very warm operating-room through drafty halls to his own room. Permit me to suggest to the surgeon that the patient be conveyed on a canopy-top table to his room where the temperature should be as near that of the operating-room as possible for at least the first few hours following the operation.

Chloroform statistics are more variable. Some report 16,000 cases with only one death, other 1,500 with as many as five deaths. The majority of surgeons place the death-rate as one in 2,000.^{1,10,11,12} On the continent chloroform was formerly used a great deal more than ether, but of late ether has taken the lead. Chloroform up to 12 months ago was used extensively in Europe and America for the removal of adenoid tissue and hypertrophied tonsils. Now it is proved to be extremely dangerous and contraindicated in any lymphoid diathesis. Crile¹³ has shown that in operations upon the larynx the use of cocain and atropin previous to its use lessens the danger.

From the above it is apparent that we have in ethyl chlorid a safe and reliable general anesthetic for minor operations and as a preliminary to the use of ether and chloroform in major operations. During its administration, the patient may be placed either in the horizontal or sitting position. A mouth prop, to which a piece of silk cord has been attached, is placed between the upper and lower teeth. About two cc. of ethyl chlorid is sprayed into the tube of the mask and the patient is directed to take a few deep inspirations. The mask should fit snugly over the mouth and nose. The anesthetic should be gradually increased, spraying about one cc. at a time and allowing a few seconds to elapse between each dose. It is seldom necessary to use more than 10 cc. for complete anesthesia, which is secured in from one to two minutes, according to age, sex and the condition of the patient. A smaller amount of the anesthetic than is necessary for men is usually sufficient for women; alcoholics

require more than nonalcoholics. Most of our cases did not receive more than five cc., and the average length of anesthesia was from one and a half to three minutes. In only one of these cases did nausea follow, and that was in a case of adenotomy. Whether the nausea was due to ethyl chlorid or to swallowed blood, I am unable to say. In using ethyl chlorid as a preliminary to ether or chloroform smothering sensations and struggling are avoided, the time for complete anesthesia is shortened, and the amount of ether necessary for complete anesthesia is thus reduced. The following few cases in which it was used may be cited:

Case I: Dr W., aged 30, was suffering from acute otitis media. Five cc. of ethyl chlorid were used for the anesthetic. A free incision was made in the tympanic membrane, and was carried deep into the external canal on account of sagging of the superior posterior wall. There was no headache, vomiting, or any unpleasant symptoms. The operation was done in my office in a reclining chair.

Case II: Dr L., aged 29, was suffering from adenoid tissue in the postnasal space. Five cc. of ethyl chlorid were used as an anesthetic, and the tissue was removed with a curet. Neither pain nor nausea was experienced, in fact, the patient said that his sleep was a very pleasant one. The operation was done in a dental chair.

Case III: Dr J., aged 31, was given six cc. of ethyl chlorid for the removal of adenoid tissues. No vomiting or headache, or any unpleasant symptoms developed.

Case IV: Judge W., aged 58, was given four cc. of ethyl chlorid. A free incision of the tympanic membrane and external canal was made. No unpleasant symptoms occurred.

Case V: Baby L., aged 10 months, was given three cc. of ethyl chlorid. An incision of the drum membrane was made. In this case the baby sat on its mother's knee. There was no vomiting, nor did the child even cry on awaking.

Case VI: Gertie B., aged 13, was given eight cc. of ethyl chlorid. The tonsils and adenoid tissues were removed. There was no vomiting and no unpleasant symptoms resulted.

Case VII: Herbert W., aged 15, was given four cc. of ethyl chlorid, preliminary to the use of ether for removal of adenoid growths and tonsils. After using the ethyl chlorid, it took only a little over half an ounce of ether to get the patient thoroughly under the influence of the anesthetic. There was no struggling and no vomiting during or after the operation.

From the above cases you will see that we have used it on the young, middle aged, and the old, with no evil effects. In cases in which the tonsils are submerged, and in cases in which adenoid growths are also present, I would not advise the use of ethyl chlorid alone, as the time of anesthesia is not long enough to do a thorough operation.

For the nose, throat and aural surgeon it is an ideal anes-

thetic. It is very satisfactory for puncturing the ear drum, for opening furuncles in the canal and abscess of the throat, or for the removal of adenoid tissue or tonsils. I have also used it in making examinations of the tympanic membrane when the external canal was swollen and very painful. Permit me to sum up its advantages: (1) It is safe and reliable. (2) It is simple to administer. No expensive apparatus is necessary. (3) It causes no cyanosis nor struggling. (4) It is pleasant to take, no smothering or unpleasant symptoms result. (5) Its after-effects are comparatively *nil*. (6) Its cheapness. (7) Its easy mode of transportation. (8) It can be administered with the patient sitting or reclining. (9) It can be given in your office. (10) It is adapted to cases in which it is not desirable to narcotize the patient thoroughly, as in operation for goiter, openings of abscesses, throat, etc., and finally (11) it is valuable as a preliminary to ether or chloroform, thus saving time and anesthetic.

Before closing, I wish to thank Drs Burke, McGay and Richardson for their able assistance in most of the cases anesthetized.

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Acute Dilatation of the Stomach Complicating an Abdominal Operation

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The following case was met with in our clinic at the Lakeside Hospital in 1903, and affords an instance of an unusual complication which may possibly occur during the performance of an abdominal operation. Indeed, so far, I have been unable to find any record of a similar case. The history is as follows:

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, May 6, 1904

Mrs J. G., age 30, had been married 11 years. She was admitted to the Lakeside Hospital February 24, 1903. She had had two children, the youngest seven years of age, and two miscarriages, the last three years previously. Her menstrual history, with the exception of dysmenorrhea, was practically normal. On admission she complained of a dragging pain with more or less fulness in the lower abdomen, together with a frequent desire to urinate; she also had backache. She was of a rather neurotic temperament. Her family and previous history had no special bearing upon the case. On examination of the pelvic organs the vaginal outlet was found to be much relaxed; the cervix uteri was in the axis of the vagina; the uterus was sagging in the pelvis, somewhat enlarged and sensitive but freely movable. The fallopian tubes and ovaries were not clearly made out, but there seemed to be no indurations on either side. On February 26 a further examination was made under anesthesia, and as a result of the findings at this time the following procedures were carried out: The cervix uteri was dilated, and the cavity of the uterus was curetted. An abdominal incision was then made, and as soon as the peritoneum was incised, a tumor mass could be seen filling the upper angle of the incision. The abdomen above was slightly distended. Just previous to making of incision through the abdomen, the patient began to retch, but this symptom speedily subsided after a few additional whiffs of ether. As soon, however, as an attempt was made to introduce the hand through the abdominal incision, the tumor mass at once extended as a tense sac to the symphysis pubis, interfering with further manipulations. We were not long in recognizing the fact that we had to deal with an acutely dilated stomach, and a rubber tube was at once introduced through the esophagus, through which an escape of air took place, the organ at once collapsing and returning to the upper abdominal zone. We were then able to proceed with the operation, which consisted in the removal of a slightly adherent vermiform appendix; a partial resection of a cystic left ovary, together with a suspension of the uterus to the anterior abdominal wall. The abdominal cavity was then closed after the usual manner. At 5 o'clock on the morning following the operation, the patient complained of some pain in the region of the epigastrium, and as there seemed to be some slight distention at this point, the stomach-tube was again introduced, and a great deal of air together with some light greenish fluid and mucus escaped. From this time on the stomach remained in an apparently normal

condition, and the patient made an uninterrupted convalescence. On March 9, two weeks after the first operation, the perineum was repaired, and at this time no distention of the stomach could be detected. An analysis of the stomach contents, obtained after the first operation, showed a fluid of a light greenish-yellow, very acid in reaction, and containing .102% of free hydrochloric acid, the total acidity being .292%. There was some bile and mucus present, but no blood.

Reasons Why Ohio Should Build a Sanatorium For the Treatment of Tuberculosis (Consumption)

There are 6,000 people dying from consumption in Ohio every year. There are 2,000 of these between the ages of 15 and 44 years, the wage-earning, child-bearing period.

Each human life at the average age at which tubercular deaths occur is worth to the State \$15,000 (Dr Herman Biggs of the New York City Health Department).

With 6,000 deaths this gives an annual loss to Ohio from this disease of \$9,000,000.

These persons are ill and unable to work for an average period of nine months. There is thus a large additional loss of wages, and an expenditure for food, nursing, medicine, medical attendance, etc.

It is estimated that on an average about \$10,000 for each county in Ohio are spent by persons seeking other climates as a cure for consumption. The great majority of these would receive much more benefit in a sanatorium in Ohio.

About one-fourth of our orphan children are made so by tuberculosis. Many of these orphans must be cared for at public expense.

In the State Sanatorium in Massachusetts one-half of all the cases of consumption sent there have been cured. Forty per cent. of those not entirely cured were so much improved that they were able to work several years longer than they could have worked except for the sanatorium treatment.

These results are obtained by fresh air, regulation of diet, and of rest and exercise. Drugs are used but little or not at all.

Equally good results have been obtained in sanatoria under the most diverse climatic conditions. They are possible in Ohio.

The average stay for a cure in a sanatorium is six months; it is often less. A sanatorium for 300 beds would therefore be able to treat 600 patients a year.

It is an educational institution. Every patient who returns home will teach his family and friends how to live to *avoid* consumption.

The conditions that *cure* consumption will prevent its development. A sanatorium is a potent aid in preventing this disease.

As a philanthropic measure, which will also pay in dollars and cents, a State Sanatorium should be commended.

The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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EDITORIAL

The Ohio State Medical Association

The Ohio State Medical Association and the local profession are to be congratulated upon the extremely successful meeting which marked the annual gathering of the profession of Ohio, in Cleveland, upon May 18, 19 and 20. It is rarely that more convenient arrangements are provided for the comfort of members and delegates than those afforded by the Hollenden Hotel, which was chosen the headquarters for this meeting. The total registration amounting to 470, while somewhat less than had been hoped, represented an attendance from all sections of the State. In point of interest the papers presented to the Association were of unusual scientific excellence, and the high tone established by this meeting augurs well for the future development and growth of the work of the profession of the State. The program was long, necessitating a division into medical and surgical sections, and many of the papers were of more than ordinary interest, evidence **not** only of the remarkable development of scientific medicine in Ohio, but throughout the country generally. A large number of

new names appear among the essayists, who represented broadly every county in which there is a medical society affiliated with the Association.

The oration in surgery by Dr Lydston, the guest of the Association, was listened to by a large and appreciative audience, and a more enthusiastic and cordial reception is rarely accorded a public speaker upon a strictly technical subject than that given this popular surgeon from Chicago. In conclusion we cannot forbear adding a word of congratulation for the way in which the various local committees completed and carried out the necessary arrangements for this meeting. The annual banquet, held upon Thursday evening, showed the same careful supervision and was a most successful affair both as regards prandial delicacies and postprandial oratory.

THE HOUSE OF DELEGATES

In the House of Delegates the most important matter brought forward was the question of the publication of the annual transactions in their old form, there being a large element in favor of the adoption of a State journal, which might become the news medium of the Association, and permit doing away with the annual volume. The great difficulty in settling this subject lies in its complexity. The publication, as in the past in the form of an annual volume, serves only as a means of preserving the papers presented at the meetings. It does not provide for the publication of news of the Association, for the improvement of organization, for its influence upon legislation or for the thousand and one topics that the officers and the Council of the Association might present to the members with profit through the medium of an official organ. The essential character of this deficiency of the transactions when they appear in the form of an annual volume is acutely felt by the officers and Councilors of the Association, and by all those local societies which are most closely in touch with its work. It is unfortunately true that the division of opinion on this subject is largely between the city and the country members, in the desire of the latter to preserve a time-honored volume, which might be issued with sufficient promptness to present in a satisfactory way the scientific results of the meetings, but which can never afford any aid in the non-scientific work which should be undertaken by the Association. After considerable discussion the entire matter was referred to the local societies for instructions to their delegates next year; the publication of an annual volume is to be continued for the cur-

rent year: This question will not be satisfactorily settled until the deficiencies of such an annual publication are in some way corrected.

QUESTIONABLE ADVERTISING

In resolutions presented early to the House of Delegates and passed unanimously, the Ohio State Medical Association takes a high stand in the matter of advertising in medical journals. Advertisements of patent and proprietary medicines and of preparations whose composition is unknown were declared to be contrary to the principles of medical ethics, and it was further decided that any journal which the Association might in future adopt as its official organ should submit its advertising as well as its reading pages to the censorship of the Publication Committee of the Association. The House of Delegates further called attention to the advertising pages of the *Journal of the American Medical Association*, and directed its delegates to the meeting of the Association next month at Atlantic City, to do everything in their power to bring about a change in the advertising material appearing in that journal which would provide for a closer allegiance and a more strict interpretation of the ethics of the profession as applied to medical advertising.

The following officers were elected for the ensuing year: S. S. Halderman, Portsmouth, President; Frank Winders, Columbus, Secretary; James A. Duncan, Toledo, Treasurer. Brooks F. Beebe, of Cincinnati, and T. Clark Miller, of Massillon, were elected Councilors for the First and Sixth Districts.

The next annual meeting is to be held in Columbus upon a date to be decided later. It is to be hoped that the spirit of enthusiasm which prevailed throughout the meeting in Cleveland may accomplish as much during the current year as has been accomplished throughout the past 12 months, and that at the annual meeting a year hence we may be in a position to settle definitely and satisfactorily the much mooted questions which caused so much discussion at this annual meeting.

Ethical Advertising

We have alluded above to the fact that among the questions of medical policy discussed by the House of Delegates at the recent annual meeting of the Ohio State Medical Association, the point as to what shall constitute ethical or nonethical advertising was the subject of free discussion. We have also noted that a very lavish criticism was showered upon a number

of our so-called better-class journals, ours among the number (may we be pardoned for our conceit), because of certain objectionable advertising material carried in their pages.

There can, of course, be no question that a large number of the advertisements which now appear in many of the leading medical journals may be justly considered as unethical in view of the fact that they publish no formulas as to the contents of the wares advertised, and yet these same preparations, in many instances in great vogue among the profession at large, are put upon the market by houses well known and eminently reliable. It is true, moreover, that many of these preparations could be easily transferred to the so-called ethical list by the mere addition of the chemical formula giving their exact nature.

It is to be hoped that the step taken by the House of Delegates of the State Association to organize the profession of the State for the betterment of our medical publications generally may work out for good in this direction, and we are confident that the manufacturers, if approached in the proper spirit, will be quick to appreciate the value to themselves of such careful organization on the part of the profession.

In any such movement, however, it should be borne in mind that reform to be lasting must be slow and should begin at home. With the exception of but a few journals we, as a class, are dependent upon the income derived from our advertisers, who in turn appreciate and utilize those journals reaching that body of men who will use their proffered wares. Here again the shoe pinches for, unfortunately, it can often be said that the subscriber who buys largely of certain wares which we may be only too glad to advertise, is a subscriber in name only, frequently standing many months in arrears upon our books. (We cannot believe that our experience in this regard is unique.)

The situation then is this: Let us first educate the profession to appreciate the fact that it is well to support our medical periodicals by a prompt payment of the modest subscription asked, and then let us educate, if we can, that large group of men who will always use whatever they believe helps them most to insist upon an exact knowledge of just what it is they are employing, urging first, last and always, scientific accuracy and demonstrated truths. Then, and then only, can we insist that the manufacturer shall publish his formulas in every instance. We are sometimes afraid that it can be truly said of some of us that "we like to be humbugged."

The Approaching Fourth of July

A timely editorial in the *Journal of the American Medical Association* (May 21, 1904) deals with the celebration of our national holiday, which in its usual form results in so large a number of disabling injuries and deaths. As was shown by the number of cases of Fourth-of-July tetanus last year, the experience of Cleveland has been similar to that of other cities in this respect. This subject was fully considered by the Academy of Medicine at its meeting held on October 16, 1903, and resolutions were passed calling upon the City Council to take such action in the prohibition of sale and use of the toy pistol and cannon cracker as would mitigate at least the horrors of the day. The common futility of such efforts is shown by the fact that nothing has apparently been done in the line of these suggestions, and we will doubtless have an experience this year similar to that of last. It is earnestly hoped that the City authorities may still take some action by prohibiting the sale of the toy pistol and the cannon cracker. While these regulations could not be expected to entirely prevent all accidents of this character, they would certainly diminish their number.

The necessary treatment of such wounds as do occur has been very clearly pointed out in the past, and it behooves the members of the medical profession to deal with these cases in the most approved manner. Nothing short of a thorough examination, usually with the aid of anesthesia, the removal of all dirt, shreds of tissue and foreign bodies, particularly the small fragments of wadding which have been shown to be particularly dangerous, should be accepted as satisfactory treatment. Since its use in the developed disease is of little or no value, protective injections of antitetanic serum at the time of the accident may be wisely employed in certain cases.

The Absorption and Assimilation of Iron

Notwithstanding a vast amount of experimentation, different authorities continue to hold very diverse views concerning the mechanism of the therapeutic action of iron. The principal question has been the fate of "inorganic" iron. (Iron preparations are divided by pharmacologists into two classes: the "inorganic" respond directly to the tests for iron; the "organic" only after they have been decomposed. The former include all the official iron preparations; the latter, hemo-

globin, the iron of food, and sundry artificially isolated or synthetic products.)

The conclusions of Abderhalden, emanating from Bunge's Laboratory (*Zeitsch. f. Biol.* 39, 482), have been most widely accepted. These are briefly as follows: All forms of iron are absorbed and deposited as granules in the blood-forming organs. When the organism has need for an extra supply of iron, as in anemia, the granules resulting from the organic iron preparations are converted directly into hemoglobin; the granules derived from inorganic iron are not capable of this transformation, but they serve to stimulate the assimilation of organic iron.

These conclusions were based on experiments which showed that organic iron increases the hemoglobin in anemia, and that the improvement is more rapid and complete when inorganic iron is given at the same time, while inorganic iron alone did not appear to increase the hemoglobin.

S. Tartakowsky (*Pflueger's Archiv.* 101, 423) has just published a thorough critical review of this work together with some further careful experiments on young dogs rendered anemic by a diet of milk and rice, and on adult dogs made anemic by repeated hemorrhages, and kept on the same iron-poor diet. He observed a prompt recovery of the hemoglobin in all cases when iron was administered, even when this was purely inorganic. The experiments were evidently made with the greatest care, while those of Abderhalden are open to some objections.

It appears, therefore, that the fate of the inorganic iron preparations does not differ in any respect from that of the organic forms, and that both act by being converted into hemoglobin. There seems to be no good reason for continuing the use of the more expensive organic products, except in cases in which inorganic iron causes digestive disturbance.

In another series of experiments (*Pflueger's Archiv.* 100, 586) Tartakowsky investigated the channel of the absorption of iron by microchemic methods. He arrives at the conclusion that the absorption occurs by the epithelium of the entire alimentary canal, and that it is not confined to the duodenum as is ordinarily supposed. The excretion occurs by the intestine as a firm compound which does not give the iron reaction. The iron granules in the large intestine are in process of absorption and not of excretion.

Recent Work on Variola

The widespread smallpox epidemics of the past two years have afforded material for investigation of the etiology and the pathology of the diseases which was unusually available. At least two cities, Boston and Cleveland, have taken advantage of this to establish special laboratories, and to bring all the resources of modern science to bear on the subject.

The last number of the *Journal of Medical Research* is practically a monograph of the work done in Boston in these two years, under the able supervision of Dr W. T. Councilman, and is of extreme and present interest.

The completeness of the work gives hope that the long-sought organism of variola is at last run to earth, and that the next few years may show adequate progress in our means of coping with the disease. Like all organisms which belong to the sporozoa, cultivation is as yet unsuccessful, in spite of the unconfirmed reports of some observers, and it is, therefore, difficult to obtain absolute proof, but at least we have now a sufficient mass of evidence to form a sober judgment of the probabilities of the case. No side of the problem has been left untouched, and the subject has been carefully studied from the purely biological standpoint by G. N. Calkins, Adjunct Professor of Biology at Columbia, using the same material that was studied at Boston.

Without elaborate analysis, we may say that Dr Councilman has presented with great minuteness the information outlined in his preliminary report last year, and has added much of value. He claims to have found in the skin lesions of variola a protozoon parasite, apparently the same described by Guarnieri some years ago, as the "*cytortyces variolæ*." This was never accepted on account of inadequacies and inaccuracies in the description, but the work was apparently correct in the main. The organism is present in all cases of variola and is absent in all other diseases. It has two stages of development, the first one entirely within the cell-body, the second one entirely within the cell-nucleus. The relationship to vaccinia and the reason why this latter is so much less virulent and yet possesses the power of immunizing against the more serious disease seems to be that the lesions of vaccinia show only the first stage, while in variola we have both stages. This specific intranuclear stage has been worked out by Councilman, and has been described by no previous observer. The relationship of variola and vaccinia has been further established by the inoculation of animals. In those which are susceptible to vaccinia and not to variola, he finds in the skin lesions only the first or intracellular

stage, while in certain varieties of monkeys, which are susceptible to variola, he finds both the intracellular and the intranuclear stages. Calkins has followed the life cycle in the same sections as those studied by Councilman and his assistants and has worked out a life cycle of great completeness. This includes both a sexual and an asexual cycle, similar to those described in malaria, the asexual cycle taking place in the infected cells and the sexual cycle being more doubtful.

Cell necroses, due to different causes, show pictures of great variety, especially with the special stains necessary in this sort of work, making great care in interpretation necessary, and on this basis certain observers have taken the position, tentatively at least, that the changes described by Councilman are due to accident, degeneration, or invasion of the tissues by leukocytes or red blood-cells. Councilman has taken up this point in an "Epicrisis," and points out very clearly which of these appearances refer to the cytocytes, and which to other agencies, giving the reasons in each case.

Part of the work which has been done along the same lines in Cleveland has been published and part is still incomplete, but we may say that the work done here so far, by Howard and Perkins, confirms all of the intracellular cycle and most of the intranuclear cycle, and that in view of this and of the results from animal inoculation, the conclusions embodied in the monograph by Councilman and his corps of assistants seem to be thoroughly justified.

Epidemic Typhoid Due to Accidental Sewage Pollution

As an interesting illustration of the direct effect of sewage pollution upon any public water-supply, we abstract the following from the annual report of the Board of Health of Lowell, Mass., for the year 1903:

In 1890 Lowell had 454 reported cases of typhoid fever and 123 deaths. This city was then obtaining its water-supply from the Merrimack River, and about one victim per day multiplied by the average duration of the disease gave an average of 30 individuals always balanced between recovery or death.

Upon the introduction of a driven-well-supply of water, the number of cases of typhoid and the number of deaths began to show a gratifying decrease, so that in 1902 there were but 83 reported cases and 16 deaths.

Saturday night, July 18, the store-house of the Merrimack Manufacturing Company was burned, calling for large quantities of water from the corporation reservoir and from the driven-well-supply of the city to extinguish the conflagration. Following

immediately upon control of this fire an effort was made to replenish the corporation reservoir drawn low by the use of its supply in fighting the flames. As the canals had been drawn off—as is always done Saturday night—the water was pumped from the wheel-pit of the Lawrence Manufacturing Company within 100 feet from the outlet of the Suffolk street sewer. This wheel-pit is lower than the bed of the Merrimack river, and the powerful suction required to pump the water two miles to the reservoir disturbed the sewage which had collected for years at the mouth of the sewer. It was found at 9 o'clock upon the day following that no progress was being made toward filling the reservoir. This fact led to the discovery that the liquid sewage was being pumped into the driven-well-supply, owing to the refusal of the check-valves between the two systems—driven-wells and reservoir—to do their expected work. Nine hours seems to have been the time during which restricted damage was in full operation. Within 48 hours the physicians of Lowell were busy answering calls for relief from all forms of stomach trouble. The diarrheal disturbances gradually passed away, and from August 1, 14 days after the accidental pollution, cases of typhoid fever began making an appearance with increasing and alarming frequency. During July there had been but four cases of typhoid fever reported to the Board. In August there were 136 cases; during September the number decreased to 38 cases. This report correctly concludes that the history, time limit of appearance, increase from exposure and decrease when the source has been removed, show plainly the cause of the early stomach troubles, and that, happily, a large proportion of those individuals into whose systems the germs gained entrance were able to overcome the infection by the possession of sufficient resisting power.

It is but fair to add that no blame can be placed in this case upon the corporation authorities, as they could not foresee an accident of this character. All connection between the two systems is now closed.

Department of Therapeutics

CONDUCTED BY J. B. MCGEE, M. D.

Hedonal:

G. L. Hills, in the *Therapeutic Gazette*, states that after quite considerable experience with hedonal he believes that it has an hypnotic value rather greater than that of sulphonal or trional, not as long continued as that of paraldehyd or chloral, but safer in its action than any of these. It seems to be devoid of any ill-effect upon the organism, save in the presence of vascular heart lesions, and effectual in producing from four to eight hours of quiet sleep from which the patient awakes refreshed. Its action is manifested in from one-half to one hour after administration and is most useful in cases of neurasthenia, hypochondriasis, melancholia of the milder types, and various nervous diseases attended by insomnia

without marked mental excitement, or great motor restlessness. He has never given it for more than four successive nights, and thinks that it is probably not cumulative because of its rapid elimination from the body. The usual dose is 15 grains given as a dry powder placed upon the tongue and washed down with hot water, and only in very refractory cases is a dose of more than 20 to 30 grains required. While the taste is somewhat disagreeable he has never noted a digestive disturbance or unfavorable effects in any way.

Pneumonia: In the *Journal of the American Medical Association* for March 19, 1904, W. Gilman Thompson emphasizes certain conclusions as to the treatment of pneumonia: (1) The importance of not crowding an over-taxed heart with too much stimulation, and especially of basing the selection of the proper variety of cardiac stimulant on the existing balance between the conditions of vascular tone and the effort the heart is already making. (2) The uselessness of the so-called "specifics" for pneumonia, and, as a rule, of expectorants. (3) The importance of prevention of indigestion and particularly of tympanites. (4) The great value of hypodermoclysis in certain cases. (5) The uselessness of topical application excepting for the purpose of relieving pleuritic pain. (6) The necessity of prescribing proper intervals of rest in which the patient is free from incessant efforts at medication.

Glycogen: J. De Nittis, in the *Medical Bulletin* for March, concludes that it is established that (1) glycogen is most abundant in young and robust subjects, and the quantity present is in itself a comparative indication of health and vitality. (2) In old people and invalids the quantity present in proportion to the body weight is reduced. (3) In the struggle against microbic invasion, the resistance is directly proportional to the glycogen of the organism. (4) Glycogen is distinctly a cardiac stimulant. (5) It assists the very rapid healing of wounds. (6) Glycogen is an antitoxin, as experiments have shown very clearly, in cases of poisoning with nicotin and atropin. He found that while glycogen was equally efficient when given by the mouth or hypodermically in diseases in which the temperature did not rise over 39° C. (102° F.), in cases in which the temperature exceeded 39° C. the injections were preferable. He found it to be in infectious diseases, such as typhoid, a gradual heart tonic obviating the use of strychnin and cardiac stimulants. When used hypodermically the temperature, once reduced, does not rise, but remains close to the normal. Convalescence is more rapid and reinfection does not take place. It is remarkable that in tuberculosis the bacilli are diminished in the sputum and soon disappear altogether, which can be explained by the phagocytic action for which glycogen is so remarkable. It is best exhibited by the mouth in capsules of five centigrams (one grain), and should be given on an empty stomach, one or two hours after eating, when the digestive ferments have expended their energy. He claims no direct curative properties for glycogen, but a trial will prove that it really stimulates the natural process of elimination in self-limited diseases.

Intestinal Antiseptics: J. A. Storck, in the *Journal of the American Medical Association* for December 26, 1903, defines the uses and limitations of the agents commonly used as intestinal antiseptics. When using salol the fact should not be lost sight of that it contains 36% of phenol, and that its use, especially in large doses, has caused, and is liable to cause, symptoms of carbolic acid poisoning. He has seen marked symptoms of carbolic acid poisoning after the administration of two 20-grain doses 10 hours apart, and also in two other cases in which the dose given was 10 grains three times daily. In one case the toxic symptoms manifested themselves after nine doses, and in the other cases after 15 doses had been taken. When used alone for the diarrhea of typhoid fever and in dysentery it has not yielded good results, but improvement has followed its use in simple diarrhea and in the summer diarrhea of children. O. T. Osborne is a great user of salol, but when he administers it for more than a day or two at a time, and in all typhoid cases, he has the urine watched constantly, and if he finds a trace of albumin the salol is stopped. He believes that there is probably no better antiseptic for the alimentary canal, unless it is calomel. If ulceration is going on in the intestines they should be kept as clean as possible, and the diet should be such as will leave the least possible refuse. In children with diarrhea we should stop all carbohydrates, and by internal cleanliness and judicious purgatives render the canal as antiseptic as possible.

Typhoid Fever: The *Medical World* for December, 1903, asks: "Shall we purge in typhoid fever?" It continues: "There is no possible hope of ever instituting a routine treatment for the condition in the bowels of a typhoid patient; one must always act according to the conditions and indications." It is likely that free passage of feces is an effort of Nature to free herself of ptomains and poisons, and we must decide whether it is better to allow such poisons to be expelled (even at the risk of weakening the patient from the prolonged diarrhea) or to administer drugs to check the diarrhea so that the strength of the patient may be guarded, and thus retain the poison in the system and invite absorption. A certain degree of intestinal antisepsis may be secured by a judicious use of mild antiseptics without stomachic derangements. It is certain that a diarrhea instituted by Nature in the effort to get rid of putrid matter before it can be absorbed is interfered with at the patient's peril, and the writer of the article does not believe that such expulsion of poison can possibly "weaken" the patient. It is for each to decide whether strong intestinal antiseptics are worth the risk of distaste, loss of appetite, nausea (with possible dangerous vomiting) or whether the milder ones are sufficient. However, it does seem plain that free bowel movement is an essential feature in the treatment of most severe cases of typhoid.

Mercurial Nephritis: J. M. Swan, in the January number of the *American Journal of the Medical Sciences*, calls attention to the possible production of nephritis when the mercurials have been given for some time, and reports a case which illustrates in a striking manner the serious results of the over-administration of mercury. He felt confident that the nephritis from which the patient was suffering was due to large quantities of mercury which she had taken, presumably for syphilis,

and the elimination of the drug continued for one year and 29 days after the last dose was administered. The accumulation of mercury in the tissues, its subsequent elimination and possible deleterious effects are of considerable importance to the physician. The kidney changes due to mercury are excessive hyperemia, parenchymatous nephritis, etc., and in the case reported the condition of parenchymatous nephritis was reached with widespread degeneration of the renal epithelium.

Sodium Cinnamate: Paul Bartholow, in the *New York and Philadelphia Medical Journal* for March 26, states that sodium cinnamate possesses two remarkable properties, namely, a stimulant effect on the digestive tract, and a power of increasing the number of leukocytes in the blood. This great increase in the multinuclear leukocytes is of chief importance in explaining the special action of sodium cinnamate in cases in which it has been employed, as in the various forms of tuberculosis. Bartholow has in several cases of locomotor ataxia substituted sodium cinnamate for other remedies with results, so far, of a gratifying kind. He prefers to employ it subcutaneously in the interscapular space. His formula was sodium cinnamate 10 parts and sterilized water 100 parts. This represents a saturated solution, and should be kept in dark-colored bottles, or be freshly prepared for each injection. The pain of injection is slight, and he has never seen abscesses or nodules form. As a rule, three injections a week were deemed sufficient, and were given in gradually increasing doses. Beginning with 20 minims the amount was slowly raised to 60, and toxic symptoms were never observed. The cases of locomotor ataxia which were treated were of long standing and in which the degeneration in the cord had advanced to the lateral columns. The immediate effects of the injections were a decided gain in body weight and strength, a diminution in the severity of the nervous phenomena and an improvement in coordination. Sodium cinnamate he observes benefits the organism (1) by promoting appetite and digestion, and consequently nutrition; (2) by setting up chemical changes in the outlying regions of degeneration, in the cells and connective-tissue of the nerve substance.

Veronal: Roberts Bartholow, in the *New York and Philadelphia Medical Journal* for September 19, 1903, states that the new hypnotic veronal resembles trional in many of its properties, and acts without changing the character of the blood, or causing any disturbance of the respiratory function. While it has generally been used alone, it is far more effective in combination. Its dose is usually one-half to one gram ($7\frac{1}{2}$ to 15 grains). Bartholow advocates the principle, however, nowhere more effective than in the class of soporifics, of combining two of these agents with powers supplementary to each other. He believes that this principle has been too much neglected by physicians. For instance, he knows of no more certain and effective combination than that of trional and sulphonal, in the proportion of one to two, precisely because these two reinforce each other. Brunton's old combination of bromid, chloral and opium is powerful and trustworthy, but grave objections exist as to its general use. A union of veronal and trional, however, does not present these

obvious objections, and he believes these two drugs appeal to us as logical allies capable of producing better results together than either alone. He advises combining veronal and trional in the proportion of two to one. Both have a cumulative action which shows itself in a gentle and continuous somnolence, without any toxic appearances. He gives a full dose at the beginning, 10 grains of veronal to five of trional, and continues with smaller doses when the cumulative action appears. While he does not assert that this is an ideal hypnotic, he believes that it brings us a step nearer this desirable fruition.

Opium:

The *Therapeutic Gazette* for April, referring to the use of opium in pneumonia, asserts that there can be no doubt that in those cases of pulmonary consolidation, in which there is in addition profuse bronchial secretion, the use of morphin or opium is distinctly disadvantageous as it aids the carbon dioxid in stupifying the respiratory centers and the mind of the patient so that inadequate efforts are made to expectorate the mucus which accumulates in the respiratory passages. Cough in such cases as these, however annoying it may be, is nevertheless a necessary evil in order that the patient may not drown in his own secretions. In any case, therefore, in which these conditions exist, opiates are manifestly harmful. On the other hand, we not infrequently meet with cases of pneumonia and typhoid fever as well, in which an active delirium keeps the patient continually wakeful and restless, so that he exhausts his nervous and cardiac strength by repeated struggles and constant talkative delirium. After this has continued for 24 hours or more the end not rarely comes suddenly partly from toxemia, but largely from exhaustion. It is in such cases that morphin given hypodermically sometimes saves life, and often so alters the character of the case after a few hours of quiet sleep that the patient is on the road to recovery. Opium is not advised in pneumonia in general as certain conditions may contraindicate its employment, but on the other hand it may in some instances be employed with most advantageous results, and the skill of the physician must be employed to decide when it will do harm or good.

Acetoform:

In the *Medical and Surgical Monitor* for March, A. J. McCracken calls attention to a new hypnotic which he has been using for six months in cases of mental disease ranging from the milder to the more actively disturbed and sleepless cases. This new hypnotic acetoform is a definite chemical compound known as acetone-chloroform, and also as trichlor-tertiary-butylalcohol. It is sparingly soluble in water, but readily in glycerin, alcohol and ether. In Germany it has been used somewhat extensively under the name of aneson and will produce hypnosis up to complete anesthesia, the degree depending upon the amount given, its principal action being supposed to be upon the cortical cells of the brain. It is said to be nontoxic and nonirritant, while the circulatory system is said not to be materially depressed under its use. In the cases in which it was used there was no complaint of gastric or intestinal disturbance which could in any way be attributed to the drug. The effect upon the nerve centers was soothing; it quieted the patient and produced a

natural sleep after taking one or more doses with no headache following. With few exceptions the hypnotic effect of the drug was evident in from 20 to 40 minutes after being taken, but occasionally it was from 40 minutes to one hour before sleep followed the taking of a five-grain capsule of the acetoform. It was seldom necessary to give more than two five-grain capsules to produce a quiet, restful and refreshing sleep of eight to 10 hours' duration. Occasionally it was found necessary to give three or even four five-grain capsules during the night to have the desired effect. He believes that the drug is useful both in mild and extreme cases of insomnia and also has power as an antispasmodic. The dose of acetoform as compared with sulphonal, trional and like hypnotics is much smaller to produce the desired effect. The most disturbed cases only occasionally require 20 grains, and in chronic mania five to 10 grains was sufficient to produce a good sleep.

Apomorphin: P. E. Becket, in *Merck's Archives* for April, from the *New Orleans Medical and Surgical Journal*, substantiates C. J. Douglass' report as to the value of apomorphin in acute alcoholism. He believes that it not only acts as a sedative and hypnotic in alcoholism but also relieves the alcoholic craving. About one-half of his cases report that after several hypodermic injections of apomorphin the craving for alcohol had entirely left them. He has in eight cases used 1/30 grain of strychnin sulphate by the needle to counteract any possible depression from the apomorphin and found that it obviated any such condition. He concluded that (1) strychnin counteracts the depression of heart and respiration which follows the use of apomorphin in frequent doses. (2) That apomorphin acts as well in delirium tremens as in the other conditions of alcoholism, and that it is indicated in combating such a condition. (3) That it is better to begin with a small dose, about 1/30 grain, and increase it if necessary. The smallest dose required to obtain the desired effect was 1/15 grain.

Ergot: The *Medical News* for December 21, 1903, states that Dr Alexander Cambert has found that in the so-called wet brain of alcoholics, an almost inevitably fatal condition, ergot given hypodermically proves life-saving in a great many cases. Where formerly he was satisfied to save two or three out of 30 or 40 patients using all the ordinarily recommended remedies, he now has but two or three deaths from this condition during his term of service. He also asserts that it is not unlikely that in the serious conditions incident to other diseases, ergot may prove to be a most important agent. Edema of the lungs still continues to be an extremely fatal disease in spite of all therapeutic efforts. Since ergot has proved to be so beneficial for edema of the brain, its use here would seem to be especially indicated, and, as a matter of fact, some cases have been reported in which recovery has taken place in what would otherwise have proved to be fatal pulmonary edema. In all these cases the drug should be used up to its full physiologic effect. With regard to alcoholism especially subcutaneous injections of half a dram of a fluid extract of ergot containing 12½% of the drug should be employed. This should be repeated as often as necessary, or until there is a definite improvement in the patient's condition.

Diabetes:

In the *Journal of the American Medical Association* for January 2, Arthur R. Elliott treats of the limits of diet in treating diabetes. He asserts that, in general, authorities are in accord in condemning the attempt to enforce the absolute nonsaccharin diet, except perhaps for a brief period to accomplish some special result. He believes that in both mild and severe forms of the disease too close restriction will avail nothing and merely result in jeopardizing the systematic tissues. The course to be pursued in the dietetic treatment of diabetes is in the amenable forms of the disease to allow the patient as liberal an allowance of carbohydrates as he can assimilate, and in the several stages as much as is found necessary to hold in check the dystrophic advance. It will be found desirable to place cases on a strict diet for periods of three or four weeks, once or more each year, so as to afford relief to the eliminating organs and rest to the assimilative functions. Experience has taught us that even if we exceed somewhat the tolerance for carbohydrates no great harm is to be feared.

Acute Tonsillitis:

In the March number of the *Therapeutic Review*, George B. Wood states that it is a peculiar fact that many cases of an apparently simple acute tonsillitis get well most rapidly after an injection of antitoxin, and again there are some forms of tonsillitis which seem to involve only the crypts but cultures from which show the presence of diphtheria bacilli. If, therefore, even a slight suspicion of diphtheria follows our inspection of the throat, we should not hesitate in making use of the antitoxin. Acute tonsillitis, however, is generally so easily cured without antitoxin that it does not seem worth while to subject our patient to the discomfort of the injection when we are reasonably sure that the case is a simple one. The systematic treatment of tonsillitis is about the same in all of the forms of infectious inflammation of the tonsils. When there is much systemic depression and a fairly high fever the patient should be confined to bed; the food should be soft and easily swallowed, and he is accustomed to give calomel every half hour in $\frac{1}{4}$ grain doses until two or three grains are taken, followed in about 12 hours by some mild saline purge. A large number of drugs have been given in tonsillitis but none can compare in effectiveness with the preparations of salicylic acid. Salol is much extolled by some but he has found it inferior to the alkaline salicylates, as it cannot safely be given in sufficiently large doses. The salicylate of sodium has a marked depressant effect on the heart, and is very poorly borne by the stomach. He obtains much better results from the ammonium salt, and especially in conjunction with strontium salicylate. As the salicylates, however, in large doses, are always depressing, he combines these drugs with strychnin. His formula is:

Strychnin sulphate, gr. ss.

Ammon. salicylate,

Strontium salicylate, aa \mathfrak{z} iss

Distilled water, q. s. ad. \mathfrak{z} iiij

Sig. Shake well. Dessertspoonful in milk after meals.

After using the salicylates for 12 to 24 hours there is almost always a relief in the grip-like pains and aches, lessening or disappearance of the throat soreness, and a fall in temperature. After the salicylates, strychnin in rather large doses will be of benefit.

Academy of Medicine of Cleveland

The seventeenth regular meeting of the Academy of Medicine of Cleveland was held on Friday, April 15. The vicepresident, Dr William E. Bruner, was in the Chair.

The routine business was first transacted. Professor F. B. Mallory, of Harvard Medical School, reported a case of glioma over the coccyx with metastases and recurrence and then gave a demonstration of the parasites found in scarlet fever. Both papers were illustrated with a large number of drawings and stereopticon microphotographs.

Dr William T. Corlett followed with a discussion of the differential diagnosis of scarlet fever especially with regard to measles. This paper was also illustrated with many excellent stereopticon views.

The management of scarlet fever was then presented by Dr Carlyle Pope who strongly advises the free drinking of water.

Dr John N. Lenker discussed the throat and ear complications of scarlet fever.

Drs Howard, Sihler, Aldrich and Sawyer took part in the discussion of the papers. A vote of thanks was presented to Professor Mallory for his kindness in addressing the Academy.

The sixteenth regular meeting of the Clinical and Pathological Section was held on Friday, May 6, with Dr C. A. Hamann in the Chair.

Dr Hunter Robb reported a case of acute dilatation of the stomach complicating an abdominal section. Upon opening the abdomen of this patient the stomach was found enormously distended, reaching to the pubes. This was relieved by passing the stomach-tube, when the organ resumed its normal size and position. The following morning the stomach was again slightly distended and the stomach-tube was again employed. The paper was discussed by Drs Bunts, Sawyer, Hamann and Rosewater. This paper appears in this issue of the JOURNAL.

A report of a case of hydatiform disease of the chorion by Dr J. B. McGee was read by the Secretary. The patient, aged 37, had had eight children previously. When pregnant two months irregular flowing began which lasted four months. It then became so profuse that the uterus had to be emptied when this pathologic condition was found. No fetus could be discovered and the uterus was as large as at full term. At the present time the patient is again pregnant.

Dr Myron Metzenbaum presented a case of lupus which had been healed by the aid of radium. He was very guarded as to the prognosis as he stated the permanency of the cure was uncertain. (The case is more fully reported in this JOURNAL for May, 1904.) Drs Corlett, Lueke and Birge discussed the case.

A specimen of cornu cutaneum which has been removed by operation was shown by Dr Lueke. Remarks upon the subject were made by Dr Corlett.

Dr W. G. Stern exhibited a plaster cast of a case of *pes varus* following a Pott's fracture. Drs Aldrich, Bunts and Hamann discussed the case.

Specimens of osteophytes which developed at the stump of an amputated femur were shown by Dr F. E. Bunts.

Dr C. J. Aldrich showed a finger which has been spontaneously amputated in a case of scleroderma.

The Ohio State Pediatric Society

At the tenth annual meeting of the Ohio State Pediatric Society, held in this city on May 16 and 17, a large number of interesting papers were read bearing upon the study of the conditions and diseases met with in childhood. The attendance at this meeting was extremely satisfactory and the arrangements for the meeting showed much thought and careful attention as to all the necessary details for the convenience and comfort of the members in attendance.

Dr W. S. Christopher, the guest of the Society, delivered an extremely interesting address upon "Types of Children." The paper upon "The Management of Congenital Syphilis in Children," by Dr A. Ravogli, of Cincinnati, was a timely and clear exposition of our present knowledge of this subject, and called forth an appreciative and interesting discussion. A number of the essayists who delivered unusually interesting papers were from the local profession. The meeting as a whole was a great success and the management are to be congratulated upon the successful way in which the meeting went off and for the unusually interesting program.

The following officers were elected for the ensuing year: J. B. Kofron, Cleveland, President; C. L. Patterson, Dayton, First Vicepresident; Robert A. Biechele, Canton, Second Vicepresident; William Clark, Cleveland, Secretary and Treasurer.

Book Reviews

A Treatise on Orthopedic Surgery, by Royal Whitman, M. D., Instructor in Orthopedic Surgery in the College of Physicians and Surgeons of Columbia University, New York, etc. Second edition, revised and enlarged. Illustrated with 507 engravings. Lea Brothers & Company, Philadelphia and New York, 1903.

This work upon orthopedic surgery was accorded an extremely favorable reception upon the appearance of the first edition and won at once a place among the first rank of text-books upon orthopedic surgery. In this, the second edition, the author has availed himself of the opportunity to thoroughly revise the book and has incorporated all the more recent work in his special branch without sacrificing any of the general features of the first edition, which so quickly established the reputation of the volume. Orthopedic surgery occupies indeed a broad field, and though the execution of the operations necessary and even the adjustment of appliances must be left to the specialist in this branch, the general physician, and especially the worker among children, is constantly in need of a text-book of reference in his work—a need which is met in a peculiarly successful manner by this volume of Dr Whitman's. The wide range of data of a statistic nature incorporated in this volume adds not a little to its worth. Particularly important from the standpoint both of the specialist and pediatricist are the early chapters devoted to tuberculous disease of the spine. The subject of faulty attitudes, with their consequent spinal deformities, is thoroughly considered, and the chapters dealing with this subject may be read with profit by every physician. A complete index concludes the volume which in typography and mechanical makeup is all that one could wish. The numerous illustrations are of unusual value and add immensely to the clearness of the text.

The Practical Medicine Series of Year Books. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly, under the general editorial charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume 11, General Surgery. Edited by John B. Murphy, M. D., Professor of Surgery, Northwestern University Medical School. November, 1903. Chicago. The Year Book Publishers, 40 Dearborn Street.

This valuable little work presents a resumé of the more important contributions during the past year to surgical science. The various branches are taken up in order, and many of the original articles are given in *extenso*. A moderate number of illustrations are very useful in explaining the technic of new operations. The preferable methods of intestinal anastomosis receive considerable attention, and the question is very fairly discussed by the editor. Nerve suture and cord repair apparently offer great encouragement in many cases hitherto deemed hopeless. In almost all lines the advance has been steady as is shown by the improved results by old operative procedures, and the encouraging results of new ones. The size of the book is convenient, and its appearance is attractive.

Clinical Examination of the Urine and Urinary Diagnosis. A Clinical Guide for the Use of Practitioners, and Students of Medicine and Surgery. By J. Bergen Ogden, M. D., New York, N. Y. Late Instructor in Chemistry, Harvard University Medical School; Assistant in Clinical Pathology, Boston City Hospital; Medical Chemist to the Carney Hospital; Visiting Chemist to the Long Island Hospital, Boston. Illustrated. Second edition, thoroughly revised. Philadelphia, New York, London. W. B. Saunders & Company, 1903.

The first edition of this work upon the clinical examination of the urine was published in 1900, and was accorded at that time an extremely favorable reception. In this the second edition of the work the subject matter has been thoroughly revised and in many places rewritten and brought in every particular up to date. Among the many works of a similar sort, there is none which covers the ground quite so thoroughly and satisfactorily in our judgment as does this volume. If we may be allowed to criticise a minor point, we must object to the method outlined for the detection of albumin by the nitric acid test; not in any way for its inaccuracy but for the extravagant waste of nitric acid which must ensue if one uses a wine glass rather than a small test-tube. In our judgment the distinctive ring of albumin is as plainly visible in a tube of small diameter as it is in one of large diameter. The results of all the later methods and tests have been included making the volume thoroughly complete. The text is eminently practical and the illustrations thoroughly satisfactory. Taken as a whole this is a volume which we are glad to recommend as a practical guide for students and practitioners.

Manhattan Eye and Ear Hospital Reports. March, 1904. Number III.

This is a volume of almost 200 pages containing interesting articles upon the eye, ear, nose and throat by members of the Staff of the Hospital. There is nothing in it which has been specially written for this report as all the articles have been previously published elsewhere, some as long ago as 1901. The longest articles are three upon the eye, "Metastatic Car-

cinoma of the Choroid, with Report of a Case and Review of the Literature," "Insufficiency of Divergence as an Etiological Factor in Concomitant Convergent Strabismus: Its Importance, Determination and Treatment," and "The Surgical Treatment of Entropion and Trichiasis." The volume is well printed and contains numerous illustrations.

Social Diseases and Marriage, Social Prophylaxis. By Prince A. Morrow, A. M., M. D., Emeritus Professor of Genitourinary Diseases in the University and Bellevue Hospital Medical College, New York; Surgeon to the City Hospital; Consulting Dermatologist to St. Vincent's Hospital, etc. Lea Brothers & Company, New York and Philadelphia, 1904.

There are few men who could have covered the field included in this volume in quite the way in which it has been thrashed over by the author, and Dr Morrow is to be congratulated first for the careful way in which he has handled a most difficult subject, and again for the comprehensive and exhaustive exposition of the many intricate channels and by-channels involved in the delicate situations so constantly met with in a study of this nature. There is, perhaps, no more elusive subject in the entire field of medicine than this one of social prophylaxis as regards venereal infection, and its relation to all the social and domestic ties of mankind. There has been no single volume since the appearance of Fourinier's Treatise on Syphilis and Marriage which has covered at all the same lines with the same philosophic and judicial attitude. Dr Morrow has pointed out the salient features of the lurking danger from these social diseases to every class of humans, and in a masterly and straight-forward way has emphasized the necessity for greater caution on the part of the profession and for greater earnestness in the elimination of this social evil with a hope, not wholly vain, of its ultimate limitation. This work is one which should be read and carefully studied by every practicing physician. The number of points made clear not touched upon in the ordinary text-book are legion, and the moral tone of the text is everywhere such that the lesson cannot fail to be carried home. We are sure that the mission of this volume will not be in vain.

A Text-Book of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College; Physician to the Medico-Chirurgical Hospital; Formerly Physician to the Philadelphia and to the Protestant Episcopal Hospital, Philadelphia; Fellow of the College of Physicians; Member of the Academy of Natural Sciences, Philadelphia, etc. Illustrated. Sixth edition. Thoroughly revised. Philadelphia, New York, London. W. B. Saunders & Company, 1903.

If proof were needed of the value of this text-book, the fact that six editions have appeared in as many years would seem of itself to be conclusive evidence of its merit. The mere fact, however, of the demand for repeated editions of a work of this character does not always signify its true value. There has always been something so eminently practical in Dr Anders' presentation of his subject that he has won a large measure of favor with students, and with busy physicians who turn to his work for definite help. We do not turn to Dr Anders' work for an exhaustive discussion of theory but for a clear statement of the facts as they are com-

monly accepted by the best authority of the day. He gives also a sufficiently complete bibliography of the references made use of, to which one may turn for verification of any statement or for an exhaustive study of many of the subjects considered. The typography, illustrations and press work are all that the publishers' imprint implies.

A Text-Book of Legal Medicine and Toxicology. Edited by Frederick Peterson and Walter S. Haines, M. D. In two volumes, 1500 pages fully illustrated. W. B. Saunders & Company, 1903, Philadelphia and London.

This book is an extremely valuable one, giving a thorough review of the work on medicolegal subjects with the experiences of the very capable staff of collaborators. The work is divided into two parts, the first of which deals with the more general subjects, while the second takes up toxicology and such other branches as are more or less dependent on laboratory work for their elucidation. Each subject is taken up in detail by a separate author, and are treated with great thoroughness. The chapters on the medicolegal aspects of life insurance and the responsibilities and liabilities of the medicolegal expert are of especial value. Identification by the Bertillon system and other methods is explained in detail, and the various aspects of insanity are well discussed. The book is unusually complete and is the best single work on the subject in the English language.

Correspondence

Cleveland, Ohio, June 1, 1904.

Editor, CLEVELAND MEDICAL JOURNAL,
Cleveland.

DEAR SIR: At this time of year when so many young physicians are looking for a location, news of one may be timely. I am in receipt of a letter from Mr A. C. Eakin, of Delavan, Kansas, who says:

"We need a doctor here. * * * This is a small place, about 50 inhabitants, but we have free telephone connection with about 80 farm homes adjoining town and within a radius of four or five miles. There is a small town $7\frac{1}{2}$ miles east and a larger one eight miles west, but the doctors in these places do not have a very good reputation. We should have a single man as there is no house empty in town. We have an honest set of citizens and a young man with the right kind of stuff in him and understanding his business would work up a good practice."

Mr Eakin will be glad to correspond and give further information. Hoping that this may be of use to some young man, I remain,

Yours sincerely,

S. W. KELLEY, M. D.

Rabies at Gallipolis

For several weeks the newspapers at Gallipolis have alluded to the existence of rabies among the dogs. Several carcasses of canines have been examined in the Pathological Laboratory of the Ohio Hospital for Epileptics with negative results. On May 22, however, the public suspicion was confirmed by the discovery of a pronounced Van Gehuchten Nelis histologic reaction in a dog which had bitten two people, one, a boy, quite severely. The positive results of the laboratory examination were confirmed by the autopsic disclosure of stones, straw, etc., in the dog's stomach, and later by the animal's history which was that of the furious form of street rabies.

Acting on the advice of the experts in the laboratory of the Ohio Hospital for Epileptics, and with the cooperation of the family physician, the injured lad was sent to the Pasteur Department of the University of Michigan for protective treatment. As a number of other dogs were attacked and bitten by the rabid canine, fears of wide-spread rabies are entertained, and the local authorities at Gallipolis are adopting stringent precautionary measures.

Accessions to Cleveland Medical Library

Donated by Dr Guy B. Hinsdale, Transactions American Climatological Association, 1903; Dr C. B. Burr, Transactions American Medico-Psychological Association, 1903; Dr F. E. Bunts, Transactions Ohio State Medical Society, 1903; Dr George D. Hersey, Transactions Rhode Island Medical Society, Vol. 6, 1903; Dr C. A. Hamann, Journal Medical Research, Vol. XI, No. 1; Dr C. J. Aldrich, three pamphlets; Mrs C. E. Preston, four volumes bound various medical works; Dr F. C. Curtis, 13 volumes bound medical works; Dr Henry S. Upson, 40 volumes bound various medical works; Dr Dudley P. Allen, 100 volumes bound various medical works; Dr C. A. Hamann, 8 volumes bound various medical works and 6 volumes unbound; Dr Hickin, 620 volumes bound various medical works and 19 volumes unbound; Cleveland Medical Journal, 210 numbers bound various medical works.

Purchased: Beitrage zur Klinische Chirurgie, Vols. 1 to 38; Treve's Operative Surgery, Vols. 1, 2, 1903; Nothnagel's Encyclopedia, Tuberculosis, Acute, General and Miliary Tuberculosis, 1904.

The physicians and surgeons elected to the staff of the Akron City Hospital for the ensuing year are as follows: Consulting surgeons, W. C. Jacobs, L. S. Ebright and C. W. Millikin; consulting physicians, J. P. Boyd, William Murdoch, L. S. Sweitzer and E. C. Reed; visiting surgeons, J. W. Rabe, H. H. Jacobs, T. C. Parks, D. E. Cranz, A. F. Sippy and George T. Rankin; visiting physicians, E. S. Underwood; R. B. Carter, O. D. Childs, H. D. Todd, J. H. Seiler, A. A. Kohler; gynecologists, I. C. Rankin and G. M. Todd; consulting oculist, A. E. Foltz; oculists, M. D. Stevenson and J. G. Grant; ear, nose and throat, E. L. Mather and D. H. Lewis; anesthetists, G. A. Stauffer and J. H. Hulse; clinical pathologist, H. I. Cozad; dentist, T. F. Watters; bacteriologist, W. S. Chase; neurologist, W. W. Leonard.

Medical News

M. H. Carmedy, of Painesville, will change his location to Cleveland.

Mary Austin will be the first female interne at the Protestant Hospital of Columbus.

O. Grismore, of Lima, and Miss Martha Wittich, of Cincinnati, were married recently.

Ex-coroner R. E. Brake, of Findlay, will practice medicine in Cleveland in the future.

Clifford Sater, of Cincinnati, and Miss Luella Teal, of Chicago, were recently married.

James Larimore, of Newark, who was reported recently as being seriously ill, is again able to be around.

At the commencement exercises of the Ohio Medical University, 41 graduates received the degree of M. D.

The physicians of Salem have met and decided on a uniform fee bill which will affect general practice only.

Thomas Charles Martin, of this city, has removed his office from 729 Case Avenue to the Osborn Building.

A. M. Duncan returned to Bucyrus recently for a short stay. The Doctor's permanent home is in Los Angeles.

The fifty-seventh annual commencement of the Starling Medical College was held on May 4, at which 33 diplomas were issued.

At the annual meeting of the staff of St. Francis' Hospital, Cincinnati, resolutions were adopted on the death of T. Bange and H. Terlinden.

H. C. Long, of this city, is in Baltimore taking the summer course at Johns Hopkins' University. He is devoting his time there to gynecology.

There was an unusually large attendance at the meeting of the Clark County Medical Society at which J. M. Buckingham delivered an address on "Obstetrical Emergencies."

The Cleveland College of Physicians and Surgeons held its graduating class banquet at Hotel Euclid on May 4. R. E. Skeel, Dean, was toastmaster. The graduating class consists of 19 members.

Health Officer Brandt, of Toledo, says that not more than one case in three of typhoid fever is being reported in Toledo,

and that instead of 44 cases during the last year the real number is nearer 150.

The fourth regular meeting of the Lake County Medical Society was held on May 4 at Painesville, at which meeting Charles B. Parker, of this city, delivered an address on "The Radical Cure of Hernia."

Alfred S. McCaskey, once a member of the Ohio State Board of Health and physician to William McKinley, when the latter was Governor, is absolutely helpless as a result of a fall from a street car two months ago.

Ohio's medical registration act has been declared unconstitutional. Judge Charles S. Reed, of Sandusky, decided that the law discriminates against Christian Scientists in particular. We wonder if the Judge does not lean just a little bit toward Christian Science himself!

The Hancock County Medical Society royally entertained the Seneca County Medical Society at Findlay. About 50 physicians were present at the banquet, after which J. F. Baldwin spoke on "The Great Northwest of the Abdomen" and W. H. Gibbon on "A Few Facts From General Work in Practice."

The Delaware County Medical Society has been reorganized. A broader and more liberal stand is now taken, and all honorable, registered physicians are eligible to membership. The following officers were elected: President, William B. Hedges, vice-president, E. M. Hall; secretary, J. B. Woodworth; treasurer, Dr Rodgers.

The Erie County Medical Society met at the West Hotel, Toledo, and effected a complete reorganization. A new constitution and by-laws were adopted and a charter applied for. The following officers were elected: President, Charles Graefe; secretary and treasurer, H. C. Schoepfle; censors, J. T. Haynes, M. J. Love, W. Storey.

The preposterous idea of caring for inebriates at the Cleveland City Hospital, according to the so-called "Swaine System," a secret formula of Dr Swaine, which several persons under the guise of a philanthropic movement have been trying to enforce upon the City government for a pecuniary consideration, has in all probability been quashed for good.

The thirty-first convention of the Eastern Ohio Medical Society was held at Akron. Katherine Kurt, of Akron, delivered a paper on "Difficult Obstetrical Cases." This paper called forth

considerable discussion. Other papers were read by Josephine Danforth, W. E. Trego, C. H. Rust, H. D. Bishop, N. T. B. Nobles, J. C. Wood, H. F. Biggar, of Cleveland, and S. P. Gaston, of Niles.

The Trumbull County Medical Society met for the first time in two years at Warren, recently. John P. Sawyer, of Cleveland, read a very interesting paper on "Diseases of the Stomach." A reorganization of the Society was effected, and the following officers were elected: President, T. M. Sabin, Warren; vicepresident, C. C. Williams, Niles; secretary and treasurer, F. K. Smith, Warren.

Summer Course in Experimental Pharmacology: Drs Torald Sollmann and E. D. Brown will offer a laboratory course in pharmacology from June 13 to 25, at the Medical College of Western Reserve University. The work will occupy both mornings and afternoons and will cover all the laboratory conference, all the animal experiments and most of the clinical exercises which constitute the regular experimental course at this college. The fee, including materials, will be \$25.00.

Deaths

M. O. Butterfield, of Venice, committed suicide on May 2.

D. M. Lyman, of Croton, died recently. He was 63 years of age, and had been practicing medicine for 40 years.

Giles S. Mitchell, of Cincinnati, died suddenly at his home on May 5. Dr Mitchell graduated from the Ohio Medical College in 1875.

Ignatz Friedman, one of Cleveland's most prominent physicians, was, with his coachman, Robert Lewis, crushed to death under the wheels of a street car.

The Cleveland Medical Journal

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No 7

Report of Two Cases of Hemifacial Atrophy, with Presentation of Patients

BY HUBERT de L. SPENCE, M. D., CLEVELAND

Demonstrator of Neurology, Medical Department Western Reserve University;
Neurologist-in-Charge Lakeside Hospital Dispensary; Consulting
Neurologist to City Hospital

The two patients who favor us with their presence tonight serve to illustrate two types of a very rare and still somewhat mysterious pathologic condition known as facial trophoneurosis, progressive laminar aplasia, or most commonly progressive hemifacial atrophy. The histories of these cases are as follow:

Case I: Miss H. M., aged 16, is of Anglo-American parentage. Both parents are healthy, the family history being free, so far as known, from abnormality or diseases of the nervous system. With the exception of uncomplicated measles and a recurrent pharyngitis, of which she has been free for some years, the patient's health has been good. There is no history of trauma of the head or face.

About four years ago an oval, whitish patch became apparent in the center of the right cheek, which, after remaining unchanged for a year, became less noticeable. The subjacent tissues seemed a little hardened. Shortly after this an olive or brownish discoloration of the skin about the angle of the mouth and laterally on the lower jaw was noted, and at this time three or four circular atrophic patches became evident, scattered over the above-named area. At this time also a sharply defined vertical cutlike depression developed on the chin, a trifle to the right of the middle line, which, when smoothed out, showed a well-marked atrophic process. Under these patches the tissues were distinctly hardened. This induration, however, soon disappeared, being replaced, so to speak, by the evident general shrinking of the surface roughly represented by the distribution of the third division of the fifth

nerve. Following this, though without the further appearance of sclerodermic patches, some slight flattening of the cheek above has ensued, a shallow groove extending upward as high as the zygomatic process, above which the parts were unaffected. Just when the thinning of the right half of the tongue became evident, I do not know. In 1901 it was unmistakable, though the process has been stationary since then. At the present time the disparity of the facial surfaces is marked, the lower jaw behind the curve of the chin being deeply grooved. The patches are readily observed; the discoloration, due rather to



atrophic change than pigmentary deposit, is barely noticeable. On everting the lower lip, the general thinning of the tissues is well seen. Calibration of the cheek with the thumb and fingers proves the affected side to be less than half the normal thickness. It is doubtful whether the bone is changed. Marked osseous asymmetry is in all probability not really atrophic so much as due to arrest of bony growth in cases in which the disease begins during the formative period. No change in the teeth or gums is visible: the palates, uvula and pharynx are normal. The nasal cartilage is also, fortunately, exempted, the patient thus escaping the marked deformity following deflection of the nose resulting from the occasional atrophy of that tissue. The special senses in this case are intact, nor has there been any change in general sensibility—touch, pain and temperature. Pain in the nerve has not been complained of, although at one time some muscular twitching was observed. Good muscular power is retained, due probably

to the location of the affection. Electric examination shows slight quantitative reduction, but no true degenerative reaction. An observation of this case of four years' duration leads us to hope that the process has now reached its limit.

Case II: The second patient, aged 22, is of sound ancestry, and with the exception of measles in 1899 has been unusually free from common ailments. At the age of 10, while in a gymnasium, he fell from the parallel bars, striking the left cheek violently against an iron floor brace. There was, however, no serious



external wound nor fracture, though he remained unconscious for some minutes. About six years later some slight diminution of the left side of the face was noticed. The discovery of this fact was, so to speak, gradual. There has not been any patchy affection of the skin, as in the former case, nor sensory symptoms of any kind. For the next two years the atrophy steadily progressed, but during the last four years it remains unchanged. The present condition is as follows: On facing the patient a pronounced assymetry is obvious, involving the face in its entire length. The temporal fossa is deepened, the atrophic tissues hug the zygoma closely, and the cheek is distinctly concave.

On inflating the cheeks the over-distension due to lessened resistance is very noticeable, and so markedly is the articulation of this side of the face affected by decreased support of the atrophied structures that the mouth cannot be fully opened without subluxation of the jaw. On applying the finger lightly over the

masticatory muscles a rapid clonus or vibration is felt when an attempt to bite is made. This is most marked in the masseter and buccinator, but is even obvious in the temporal. There has been no change in general or special sensibility, nor any pain or paresthesia. The appearance of the skin is not materially altered nor can any change in the tongue, teeth, gums, uvula or palate be detected. The beard is perhaps a trifle thinner on the affected side. In both these cases no change in the action of sudoriparous or lachrymal apparatus is apparent, nor are any pupillary irregularities observable. Electric examination shows a markedly feeble response to faradic and galvanic currents. From the fact that no progress has occurred in the last four years, there is ground for belief that the disease is now permanently arrested.

The etiology of this interesting affection is obscure. It flourishes on neuropathic soil and preponderates in youth, and in the female sex. While occasionally attacking those of normal constitution and ancestry, its association with degenerative nervous diseases, such as syringomyelia, tabes, hysteria, multiple sclerosis and the insanities, is frequent. In some cases it has followed acute infections, such as rheumatism, influenza, scarlatina and typhoid fever. In one remarkable case of Wolff's the disease on the right side followed scarlatina with diphtheria at the age of six, and many years afterward the left side became affected consequent on typhoid fever. Trauma of the face has proved an efficient cause in a number of cases; occasionally it has been found associated with diffuse scleroderma, Addison's disease, and other skin affections. It may follow disease or injury of the fifth nerve. In not a few instances no causal relation, however slight, has been assigned.

The two cases here shown well illustrate the different modes of onset of the disease. Most often, perhaps, the atrophy begins at one spot, following the course observed in the first patient. The subsequent results depend, of course, on the duration and intensity of the process. Along with the atrophy alopecia and wasting of the sebaceous follicles ensue. The asymmetry becomes more striking with the upward extension of the disease until in severe cases, especially if the condition begins in childhood, the affected side assumes the appearance rather of an appendage than the fellow of the unaffected one. The extensive bony change, together with the shrinkage of the nasal cartilage which causes marked deviation to the affected side, and the distorted mouth, complete a striking and unmistakeable picture. To these basic symptoms a number of minor ones may be added. The special senses are very rarely touched; at times, hearing and taste suffer. Affections of the eye are rare. Disappearance of the retroocular fat may produce an enophthalmos. Sympathetic symptoms are at

times recorded; unilateral miosis, temperature changes, and absence or excess of perspiration are the most prominent indications of this kind. Among other unusual phenomena, twitchings either clonic or clonotonic may be mentioned. In the last case the clonus is followed by tonic spasms, sometimes painful in character.

As yet only two cases have come to necropsy, those of Mengel and Homen. In the former, the disease was of 25 years' standing, and accompanied by atrophy of the left arm and hand. A proliferating interstitial neuritis of the left fifth nerve was found, chiefly affecting the second branch. The descending root of the same nerve was found atrophied. In the case of Homen a dural tumor pressing on the Gasserian ganglion and trifacial branches was disclosed. Beside hemiatrophy there was anesthesia of the face and tongue with oculomotor paralysis. The nerve, especially in its sensory part, showed decided degeneration, as also the third, and some branches of the fourth, sixth and seventh.

Though some diversity of opinion still obtains as to the pathology of this disease, there can be no doubt that clinical evidence generally points to involvement of the sensory portion of the fifth nerve. Antecedent trigeminal neuralgia is not uncommon, and this fact with the accompaniment of masticatory spasm, together with the relation to nervous supply of the parts attacked, confirm this view.

Section of the posterior root of the trifacial at the base has produced hemifacial atrophy. From this and other experimental evidence it has been concluded that the trophic fibers of the trigeminus are in the posterior root. The vasomotor symptoms sometimes observed are probably dependent on affection of the sympathetic fibers concurrent with the fifth nerve. Though in severe cases the shrinkage of the skin may doubtless involve increased pressure on the underlying vessels, this condition is certainly a result rather than a cause of the developed condition.

The differential diagnosis of hemifacial atrophy is as a rule not difficult. Long-standing facial palsy may present a superficial likeness, as also an extreme degree of congenital asymmetry; scleroderma alone may present some difficulty. The circumscribed form, morphea, which at times attacks the face, presents white plaques or band-like markings at first swollen and indurated which later becomes fixed, scar-like and atrophic and edged with a pink zone of dilated capillaries. Its preference when facial is for the supraorbital region.

Treatment: The question of treatment may be unfortunately dismissed with very brief reference. While no drug yet known

appears to have any influence on the progress of the disorder, galvanism is by some believed to have retarded and even arrested the progress of the disease. Occasionally the dentist's art may be appealed to with the aim of counteracting a deformity by the aid of suitable cosmetic appliances.

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Practical Deductions from Some Personal Experiences with Ectopic Pregnancy

BY R. E. SKEEL, M. D., CLEVELAND

Symptomatology and Diagnosis: It is well known that the classical descriptions of disease and the clinical pictures they present at the bedside oft-times vary widely. In no condition is this more evident than in the symptomatology of ectopic pregnancy. One of the most prominent of the text-book symptoms is that of missed menstruation, and yet menstruation may be present and the irregularities, if any, may have been so slight as not to attract the attention of the patient.

A case in illustration is that of Mrs E. W., aged 28, the mother of two children, whose menstruation had been regular. During the first week of April, 1903, while absent from the city, she had slight colicky pains in the pelvis for which she consulted a physician who considered her ailment of no importance. Her pain persisting, she came home and soon after her arrival she began flowing and fainted. Her family physician was called and suspected from the pallor and rapid pulse that concealed hemorrhage of some sort must be taking place and that its most likely site was the abdominal cavity. Physical examination was entirely negative, and as her condition was not extreme and the diagnosis in doubt, she was removed to the hospital and carefully observed for 24 hours. During this time her condition was practically stationary but slight dulness made its appearance in the flanks and rendered the diagnosis more nearly positive and exploration imperative. The abdominal cavity was opened and revealed a ruptured and bleeding right tube and a large amount of free fluid blood. Convalescence was smooth and rapid and within six months the patient again became pregnant and aborted.

Subnormal temperature is also a text-book symptom but much harm has been done by forgetting that the lowered temperature of hemorrhage and peritoneal shock is apt to be succeeded by slight and sometimes extreme elevation as reparative peritonitis sets in. Missed menstruation with irregular slight bleeding, "spotting" is always referred to as a suspicious circumstance, and

such it undoubtedly is, especially when associated with unilateral pelvic pain, but menstruation may be missed, no irregular bleeding occur, and no pain be noticed.

This was the condition found in the case of Mrs T., aged 24, the mother of one child two years of age, who considered herself normally pregnant at two months. Without the slightest premonitory warning she was seized with excruciating abdominal pain and became unconscious. She was in extreme shock and barely able to answer questions when seen two hours later. In this instance, as well as the foregoing, no physical evidence of a lateral mass was ascertainable, both because of the obese abdominal wall and because there had been no time for the formation of a clot and reparative peritonitis to occur. The tube could not be palpated, the pain had entirely subsided, but there was localized tenderness upon bimanual examination. The diagnosis was necessarily by exclusion. In this, as well as in the preceding case, it was almost impossible to rule out the attempted induction of criminal abortion since collapse often occurs from the introduction of fluids under pressure into the uterus, and patients' statements under such circumstances are wholly, and frequently intentionally, unreliable. A diagnosis was finally established after assuring the patient that a misstatement might cost her life. Operation was performed at once at the patient's home and a freshly ruptured, freely bleeding left tube ligated and removed. She has since that time borne one child.

The absence of ordinary and characteristic local symptoms sometimes renders it necessary to resort to exploratory operation when the general condition leads one to suspect a ruptured ectopic pregnancy. Exploratory abdominal section is of serious import if undertaken in the face of shock, low blood-pressure, etc., unless the diagnosis is clear enough beforehand so that there is a reasonable ground for the belief that a bleeding vessel can be found and ligated, or the evidences of peritoneal irritation are so marked that they furnish definite indications for operation.

In the absence of such conditions vaginal section is much more rapidly performed, has a minimum of danger from shock and confirms or negatives the diagnosis while the patient is in position for preliminary curetage. If the diagnosis is correct, and the peritoneal cavity contains free blood, two or three sutures close the incision and the whole procedure need not take more than five minutes. The abdomen can then be opened from above and the condition dealt with in the ordinary way.

This was the method adopted in the case of Mrs B., aged 34, the mother of three children, the youngest five months old. She had menstruated but once or twice since the birth of the last child and was unaware of any pelvic trouble. During the early

morning of June 23, 1903, she turned in bed and experienced some abdominal pain which she could not locate. At the same time she began to flow. Her physician was called and examined her carefully, but was unable to locate anything abnormal in the pelvis. Precisely the same occurrence took place the next night. The pulse was not markedly elevated, the attack of pain was short, and the slight flow continued. Anchylosis of one knee made vaginal examination very unsatisfactory, but an indefinite sense of resistance was found in the left vaginal vault. Under ether this was more marked and curetage removed so large a quantity of deciduous material that the case was considered to be one of abortion with infection of the left ovary. Owing to the uncertain history, however, a posterior vaginal incision was made and there immediately followed a gush of bright arterial blood and a few recent clots. The vaginal vault was closed, supra-pubic laparotomy performed, and it was found that bleeding which had previously ceased had begun anew, undoubtedly because of the manipulation during examination and curetage.

The practical deductions which I should make from my experience with these three cases are that the characteristic local symptoms may one or more be absent, the physical evidences be absent or indefinite but that hemorrhagic shock in a child-bearing woman with any symptoms pointing suspiciously toward the pelvis is sufficient justification for exploratory operation for purposes of diagnosis, and in those instances in which serious doubt exists vaginal section offers the safest and quickest method of clearing up that doubt.

A long period of sterility is frequently mentioned as an almost necessary antecedent of ectopic pregnancy, but of 15 cases of which I have notes, three were primipara, two had been married less than a year, one four or five years; the remaining 12 had borne from one to five children and in none of these instances had an unusual time supervened since the last pregnancy. Fourteen of these cases were operated upon and the condition of the other tube ascertained in 12. Pyosalpinx existed in one, tubo-ovarian cyst in one, one case had but one tube and ovary as I had removed the other for a dermoid with twisted pedicle a year previously. In the latter case pregnancy at four months existed at the time of the first operation and miscarriage took place on the third day following. The tube, which was later the site of pregnancy, must have been the one through which the ovum passed at the previous gestation. In one instance both tubes were intact to the cornua of the uterus, interstitial pregnancy was present with rupture of the uterine wall. Of the remaining eight cases with macroscopically normal tubes four have since been pregnant.

It is obvious that something more needs to be ascertained concerning the pathologic conditions antedating the abnormal pregnancy and that if tubal disease be the cause it must frequently be unilateral. If any deduction could be made from so limited a number of cases it would be that the condition is more common in women actively engaged in the function of child-bearing than in those sterile for a long period of time. Tubal abortion is a term often used to explain the cases in which recovery has taken place without operation, and one author of note insists that tubal abortion is more common than tubal rupture.

The condition of the tube could be ascertained in 11 of the 14 cases operated upon, and it was ruptured into the free peritoneal cavity in all of them. The severity of the symptoms due to rupture and hemorrhage seemed to depend upon the location, rupture near the uterus causing the most profound and sudden depression. Of the remaining three cases one had suppurated and formed an extensive abscess, the other two had vaginal incision and drainage only. While tubal abortion may occur it seems best to consider that cases presenting symptoms severe enough to be brought to the attention of the surgeon are probably instances of tubal rupture.

Treatment: Some cases undoubtedly recover without treatment. One in this series did so having been first seen 10 days after the primary rupture. No evidence of infection or secondary hemorrhage following, she made a slow but satisfactory recovery with simple rest in bed. Fourteen cases were operated upon, two by vaginal incision, one recovered and one died. The one that died deserves more extended consideration.

Her last menstrual period was in September, 1902. For a period of four or five months she considered herself to be normally pregnant but the first appearance of enlargement of the abdomen was to the right of the median line. During this time she was not well but did not consider herself ill enough to be in bed. In the early spring, the dates could not be ascertained with exactness, she had some pain in the abdomen and upon one occasion became quite faint. In May and June she had what her physician termed attacks of peritonitis with irregular temperature, vomiting and abdominal pain. July 18, when first seen in consultation, she had been confined to the bed for a month, was extremely emaciated, with rapid pulse and occasional elevation of temperature, together with profuse sweats. Examination revealed a mass extending from the posterior vaginal *cul-de-sac* to the umbilicus, more marked upon the right side. A moderate enlargement of the heart with some irregularity of pulse and faint mitral murmur were all attributed to a previous attack of rheumatism. Diagnosis was

ectopic pregnancy, hematocele and suppuration within the sac; a vaginal incision was made with the object of drainage. The interior of the mass was explored with the finger but nothing but old laminated foul-smelling blood clot was discovered. Upon removing the finger profuse hemorrhage occurred both from the edges of the incision and interior of the mass and was not controlled until the cavity was firmly packed and the incision tightly sutured. The temperature at once shot up to 105° and rapidly returned to normal but the pulse remained fast. Irregular variations of temperature with slight chills were now observed, but her general condition was somewhat improved. Removal of the gauze upon the fifth day was accompanied by a return of the bleeding which for a time seemed uncontrollable. It was eventually checked in the same manner as the first and the patient survived 10 days longer, dying with unmistakable evidences of septic endocarditis. It is altogether likely that this condition was present at the time of operation but its manifestations were attributed to her previous attack of rheumatism and toxemia from the supposed suppurating focus. Delay was, therefore, primarily responsible for this death.

Abdominal section was performed upon 12 cases, six during shock and while bleeding from primary rupture was still present. One of these cases died. She had been under observation for several days but the diagnosis was in doubt. She had a pelvic mass, but this was known to have been present a year and had caused repeated slight attacks of peritonitis. She had been for years a semi-invalid and her general condition was wretched. The time was set for operation and just before it arrived distinct evidence of severe hemorrhage appeared. Laparotomy revealed an abdomen full of blood, a tuboovarian cyst upon one side and a freely bleeding tube ruptured near the middle upon the other side. Both were removed and the patient rallied from the profound shock under intravenous infusion of adrenalin and saline solution. She was kept alive for four days by heroic stimulation but eventually succumbed. This patient would undoubtedly be alive today had an operation been possible an hour or two sooner. Of the remaining six cases, two were operated upon after secondary rupture of the primary hematocele with recovery, one during the sixth month with a living fetus with recovery, one during suppuration of the hematocele with recovery, and one two months beyond full term with death on the tenth day from tetanus. The latter case also deserves more extended consideration.

This patient had thought herself normally pregnant and nothing peculiar in her history of pregnancy could be elicited except the painfulness of fetal motion. At full term spurious labor supervened and lasted several days, the breasts filled with milk and

fetal motion ceased. She first came under my observation six weeks later when the breasts were again flabby. There was considerable abdominal pain at irregular intervals and the condition of general malaise was such that she was able to sit up only a portion of the time. Examination revealed an abdominal tumor, freely movable but inclining to the right side, in which the fetal parts were palpable with startling distinctness; there was no motion, no fetal heart sounds and no bruit; under the costal arch the head could be palpated. Vaginal examination showed a moderately enlarged uterus pushed to the left, a deeply lacerated cervix through which the finger could be inserted and a pale and gaping vagina. After several days observation and confirmation of the diagnosis by repeated examinations, the patient was operated upon December 28, 1901, just 11 months from the last menstrual period. The omentum was adherent under the incision and was ligated and removed, when a thin translucent sac, through which the fetus was visible, came into view. No other evidences of an inflammatory sac, such as is usually present in these cases, could be found, and upon various portions of its surface the sac was directly adherent to intestine upon one side and projecting portions of the fetus upon the other. Owing to this peculiarity the abdominal cavity was somewhat contaminated by the contained fluid which had the odor characteristic of abscesses in the vicinity of the intestine. The child was removed and the placenta sought. It could be plainly felt but its exact location was puzzling until the entire pelvic cavity was exposed and the uterus and appendages brought out when it was found, shaped like an inverted mushroom, in the upper portion of the uterus. Both tubes were intact to their entrance into the uterine wall, and the case must have been one of interstitial pregnancy with rupture of the fundus. That portion of the uterus above the tubes was amputated and the fundus closed with chromicized gut. The incision was partly closed and gauze drains inserted into those parts of the cavity which were known to be soiled. The patient's condition was precarious for three days with high temperature and rapid pulse, during which time she received repeated hypodermic injections and saline infusions. From the fourth until the eighth day recovery was apparently assured. At the latter date she complained of stiffness of the neck; rigidity of the masseters and all the symptoms of tetanus rapidly developed and death supervened on the tenth day. The possible sources of infection were carefully gone over, all packing and the abdominal sutures and catgut from the same supply were submitted for bacteriologic examination without result. Two other possible sources of infection were present, the water used for the saline solutions and possible latent infection in the patient's genital tract. Boiled water only was used but such sterilization as is ordinarily given by one boiling is not sufficient to destroy tetanus spores. The wide open vulva and cervix together with the close proximity of the patient's rooms to a stable make this a possible source of contamination but no definite decision has been arrived at as to which of these factors was responsible for the

catastrophe. My own feeling has always been, however, that if I had performed total hysterectomy the patient might have lived.

Of the 14 cases operated upon, three died, a mortality of 21% which is truly excessive, but analysis reveals the real source of such high mortality. Two of the deaths were due to procrastination, the other to one of those accidental infections which will occasionally occur and which gives an appreciable mortality rate to any and all operative work.

The mortality rate for cases going on to a spontaneous termination has been found to vary in different series of cases from 42 to 80%. It is indeed probable that 50% is a very low estimate. On the other hand the convalescence of extrauterine cases treated by early operation is remarkably smooth and painless. Marked objection has been raised to operation during shock from primary hemorrhage, but it is well known that patients in shock from a single severe hemorrhage bear operation better than those reduced to the same condition from repeated slight ones.

No abdominal surgeon would dream of deferring from day to day interference in a case of slipped ligature following oophorectomy even though his patient should temporarily improve and there seems to me to be no legitimate ground for such action in ruptured ectopic gestation if the diagnosis is at all certain.

In conclusion I should say that a low mortality rate in ectopic cases can be gained only by an early diagnosis established by frequent and repeated observation, definitely confirmed if need be by vaginal section and exploration, and operation at any period provided the diagnosis is reasonably certain; and, fortunately for this view, the condition in early cases is rarely so extreme that imperfect preparation and precipitate operation are necessary.

Trypanosomiasis

BY ROGER G. PERKINS, M. D., CLEVELAND

The lack of success of bacteriologists in establishing the etiologic factors of certain diseases, notably the group known as the infectious exanthemata, has lead to extensive research in the line of animal parasites, and these efforts have been of late years crowned with a large measure of success.

In the exanthemata the work of Councilman and Mallory gives hope that scarlet fever and smallpox may come within the pale of diseases with known causes, just as we have already

accepted malaria and Texas fever, with their parasites of animal nature. During the last two years another group of organisms, also of animal rather than vegetable character, have been figuring conspicuously in medical literature. For many years a large group of diseases of animals has been associated with certain flagellates, and these have recently been shown to be probably more or less closely related. There were at the same time in the districts infected with these parasites, certain diseases of man which were attributed to malaria, though the symptom complex was quite different, and the malarial parasite could not be found in the blood. The discovery of trypanosomes in these patients has brought the subject out of the realm of the veterinarian into that of the physician, out of the agricultural department into the medical.

The organisms in this group have been classified by the biologists as protozoa, class mastigophora, subclass flagellata, order monadida, family trypanosomidae, genus trypanosoma. The members of the family are parasites, with one flagellum directed anteriorly, and in some varieties a second directed posteriorly. The genus having flagellæ at each end does not come under the scope of the present article. The body usually has two angles, is wound more or less in the form of a spiral and one of the angles is provided with an undulating membrane. In each organism there is one nucleus and one centrosome present. The centrosome is at the posterior end, and the flagellum arises from it. It passes out along the free border of the undulating membrane, and becomes free anteriorly, extending beyond the body of the trypanosome about the length of the body itself. The length of the different types varies from 25-40 mikra.

With the exception of one observer, students of these organisms consider that the life cycle is complete in the blood of the infected animal, the only cycle yet observed being asexual in type. In this it differs from malaria, in which there is also a sexual cycle, taking place in the mosquito. The methods of reproduction, best studied in the trypanosome of rats, on account of the greater ease of procuring these, are in general three, all of which may and often do take place in the same drop of blood at the same time. These methods are transverse and longitudinal division and segmentation. In the first, the parasite becomes blunt at the ends and loses its regular shape. The nucleus and centrosome divides into a number rarely exceeding five each, arranged in a line parallel with the long axis of the organism. New flagellæ are then formed, usually issuing from the side

bearing the undulating membrane, the old flagellum disappears and finally the young forms separate and become free in the blood. In this form then, cleavage takes place at right angles to the long axis. In the longitudinal method the division of the nucleus takes place at right angles to the long axis of the organism, the flagella issues from the end of the parasite, and the cleavage is parallel to its long axis. In the third method, that of segmentation, the ends of the parasite curve over and meet, giving an irregular globular form. The centrosome and the nucleus multiply as in the other types, but are arranged in concentric circles, the centrosomes to the center, and the flagellæ free at the periphery. In this form of division as many as 16 segments may be formed. Just before cleavage occurs, the young organisms are arranged in a rosette figure similar to that in malaria, and active motion of the flagella begins as soon as they develop. The rosettes usually break up while the parasites are still young though some observers claim that they may reach maturity in this condition.

Taking up first the consideration of the diseases caused in animals by these organisms, we find that the information on the subject dates back to 1880, and becomes of increasing importance year by year. The list of names by which infections now thought to be trypanosomatic have been called is a long one, the best known being surra, tsetse fly disease, nagana, dourine, *maladie du coit*, and the rat trypanosome. Infections of this nature are endemic along the African coast and in South America and have of late caused much anxiety to our Department of Agriculture on account of their ravages in the Philippines. India has also been long infected, and in fact the map of the distribution of the diseases when compared with that of the distribution of malaria, shows a striking similarity. The chief difference in these maps is the wider spread of malaria, which involves large areas of North America, and a great part of western Europe, neither of which have as yet been touched by the trypanosome. The reasons for this difference will appear later.

The most characteristic and also most fatal type of trypanosomiasis affects draught animals, making the problem at once one of great economic importance. Horses and cattle are extremely susceptible, the mortality being practically 100%. Mules, goats and sheep are less susceptible, the disease running a very chronic course usually terminating in recovery. Among laboratory animals rats are the most susceptible; rabbits and guinea-pigs are refractory, the disease in these being similar to that

in mules. Dogs and cats are also susceptible, though accidental infections are comparatively rare. The typical rat trypanosome, *trypanosoma Lewisii*, is apparently without effect on the rat, which harbors great numbers of the parasites in the blood for some time, and then gets rid of them, apparently acquiring a complete immunity against subsequent infection. Some observers claim that in the wild rat the disease may be fatal, but as these reports come from places where other trypanosomes known to be fatal to rats are found, and since it is still very difficult to distinguish the varieties morphologically, it seems probable that the rats which died were infected with some variety other than the *trypanosoma Lewisii*.

In animals susceptible to the disease the course is somewhat variable, but the cardinal symptoms are the same. The animal has a paroxysmal fever, with marked weakness and emaciation, and shows marked edema of the tissues, especially those about the external genitalia and the face. This edema may be of extreme degree, the hair about the parts may fall out, and the swollen tissues become ulcerated. Conjunctivitis and blepharitis are also frequent. So far as can be ascertained, the animals do not suffer any pain, except in the case of monkeys, which are susceptible and sit for hours holding their heads as though they had severe headache. A definite diagnosis may be made by blood examination, the parasites being found in greater or less numbers, and very easily recognizable.

The study of these organisms is still in its infancy, and it is very hard to determine whether a parasite answers to the description of one observer or of another, but the present status of opinion seems to be that most of the diseases are caused either by the *trypanosoma Evansi*, first found in the Indian type, or else by the *trypanosoma Brucei*, found in tsetse fly disease. Dourine, mal de caderas, nagana and surra are probably due to *trypanosoma Evansi*. The *trypanosoma Lewisii*, as noted above, is probably without pathogenicity.

In the study of disease due to parasites of an animal nature, it appears that it is necessary to have an intermediate host for the transmission of the infection. Results of investigation may be reached from either direction. In malaria the disease was well known and the asexual cycle of the organism worked out before the mosquito was even suspected, while in yellow fever, probably also a protozoan disease, the host has been found, and the progress of the sexual cycle so far understood, even though never seen, that we are able to secure absolutely efficient prophylaxis.

In trypanosome diseases, the means of transmission was understood long before the organisms were observed, as is shown by the name given in a large part of South Africa, tsetse fly disease, from the fly known to be closely associated with the infection. Later researches have shown that this fly is not the only intermediate host, but that a large variety of biting insects have the same function. The ordinary stable fly is very important in this connection, as well as several other varieties. The agency of fleas has been proved by placing dogs in pens adjacent to other pens containing healthy dogs, and so arranging the screens that only fleas could have communication between the two. Experiments of this type were almost uniformly successful. Lice are probably also concerned. The mode of transmission is, however, far different from that of malaria and of yellow fever. In these the parasite is taken into the body of the intermediate host and there undergoes a sexual cycle which results in the production of a form capable of infecting the suctorial apparatus, and passing from that into the circulation of the animal bitten. A definite period of incubation is necessary to allow for the development of such forms. In the trypanosome on the other hand, there is, so far as can at present be ascertained, no cycle in the intermediate host, which merely acts as a carrier, and must, therefore, to be effective, pass on the infection at an early date, while the parasites are still present in a viable condition on the surface of the body. For this reason mosquitoes and ticks, which bear so important a rôle in transmission of malaria, Texas fever, mountain fever, and yellow fever, are of little importance in this series. The parasites taken into the body cavity do not develop, but are digested with the blood, and by the time the insect is hungry again, those on the outside of the body are no longer viable. The length of time during which the infection is transferable varies within rather wide limits according to the atmospheric conditions. Sunlight has been found to be extremely injurious to the organisms, and they resist drying poorly. On the other hand, the number of flies is more numerous in the wet season, and the dark, cloudy days enable the flies to carry the trypanosomes for a comparatively long time before their death. In a similar way, low, marshy lands are more frequently infected than the higher dry lands. Even in these there may be epidemics, but they do not reach the degree of severity or last as long as they do in the lower parts.

In view of these facts, the question arose as to the means

of keeping the infection alive in a country through the dry season. It was then found that the wild animals were also subject to the disease, and inasmuch as the infection can be transferred by direct inoculation of infected blood, these animals in their battles with one another, keep the organisms alive until a new set of flies comes to carry them in the usual manner. In settled districts, where there are no wild animals, the infection is carried from season to season by the rats, which are always frequent, and are very susceptible.

Numerous methods of infection have been suggested by different men, and some of them have been so firmly believed as to give the name to the disease, for instance, the "*maladie du coit*," in North Africa, but careful experiment seems to indicate that such other apparent contagions are in reality dependent on injuries to the tissues concerned, and that without a portal of entry in the shape of a wound, however minute, infection does not occur.

The incubation period varies from about four days to eight or 10, depending somewhat on the portal of entry.

In regard to treatment, almost all drugs known to the medical profession have been tried and without result. All the various protective sera used against other diseases and sera specially prepared against the organisms themselves, have been tried with a similar lack of success. The only medicinal treatment which offers any present hope was brought out by Ehrlich at the recent meeting of the American Association of Pathologists and Bacteriologists in New York. By injection of a modified congo strain, he has apparently been able to assist the body cells to form protective substances in the line of his side chain theory, and has been able to give temporary immunity to mice against the *T. Brucei*. This immunity is only a fleeting one, but further modifications of the chemical may show improvements.

In the absence of such medical treatment, we are reduced to prophylaxis, and this must be carried on along the same lines as the prophylaxis against malaria, by complete isolation of infected animals from the uninfected and from biting flies, and by the protection of the healthy animals against bites of insects. In the Philippines this is done by the use of fly-proof stables, and by dressing the animals in a complete suit of pajamas, leaving no opening for insects. This is of course extremely cumbersome, but it is at present the best that can be done.

The number of cases of trypanosome infection in man may still be readily counted, though it is more than probable that

many have escaped notice in days gone by. In 1898, Nepveu, in examinations of the blood in malaria patients, found organisms of the trypanosome type in the blood of six out of 200. Three of these had quotidian, one double tertian, and two pernicious comatose malaria. He also found them in the blood of a physician apparently in health. He did not carry the work very far, but simply called the notice of the profession to the fact. Little attention was given to the matter, but he should undoubtedly have the credit of priority. For four years no further cases were reported, but in 1902, Dutton, working on the African coast, reports a case of relapsing fever with edema similar to the prevalent disease of horses, in which he found trypanosomes in the blood and no malarial parasites.

The case was at first thought to be filariasis, but the organisms were soon demonstrated to be trypanosomes. He found them also in the blood of one out of 150 children, all of whom were in good health. The patient was invalided, came to Liverpool, was studied there at the School of Tropical Medicine, and the diagnosis confirmed. The disease is described as showing irregular intermittent temperature, edema of face and extremities, rapid and variable pulse and respiration, loss of weight with marked debility, wasting and lassitude, with persistence of these symptoms, and extreme resistance to treatment. Seven other cases were described in the next two years, all these latter eight being without malarial parasites demonstrable in the blood.

These cases have been isolated, most of them in Europeans, and showed symptoms very similar to the infected cattle in the same district.

In various parts of Africa a disease known as "sleeping sickness" has been well known. It is endemic in many places, is confined to negroes, and is characterized by sleepiness passing into coma, and subsequently death, the cardinal feature of the disease outwardly being edema of the tissues, particularly about the face. A variety of causes have been given out as etiologic factors, such as the use of raw manioc as food, and several parasites, notably the *filaria perstans*. The Portuguese observers claim a so-called "*Hypnococcus*," but the evidence adduced in their articles, together with absence of confirmation, makes an unconvincing sum-total.

Castellani tried another method of examination, and in 34 cases of the disease found trypanosomes in the spinal fluid by lumbar puncture in 20. In two of these cases he was able to confirm these results by finding the organisms in the

ventricles of the brain at autopsy. In the few cases in which he examined the blood, the parasites were only found once. Twelve cases of other diseases examined in a similar way gave negative results. Bruce continued this work and in 38 cases found trypanosomes in every one, and in 13 cases in which the blood was examined, found them in 12. The work has been done carefully and conservatively, and seems to establish the relation of the organism to the disease.

So far no cases have been described in the Philippines, but in India Leishman has recorded observations which, although incomplete, suggest trypanosomes as the cause of so-called "dumdum" fever in India.

Owing to incomplete knowledge of this group of organisms, it is as yet difficult to say which of the trypanosomes described are concerned in these diseases, but it seems probable that the parasites specifically infecting the animals in the neighborhood, either the *T. Brucei* or the *T. Evansi*, are the ones infecting the human patients. The recent experiments of F. G. Novy, of Ann Arbor, give the best hope for differential diagnosis. He has succeeded in cultivating two varieties of trypanosoma on artificial media, with comparative ease. Before this no protozoan had ever been successfully cultivated, making the difficulties of study enormously greater, so that these cultures simplify matters very much. The organisms grown are the *T. Lewisii*, of rats, and the *T. Brucei*, of the African type. The media used is a combination of agar and of rabbit's blood in varying proportions, and the parasites remain alive in this for a period of weeks. He has been able by a combination of cultural and inoculation methods to separate *T. Brucei* and *T. Lewisii*, and is still working on the problem.

Immunity experiments, with the exception of those noted by Ehrlich, have been without results of importance. Infections of rats with *T. Lewisii* apparently give the animals a permanent immunity, but the trypanosomes which cause disease usually kill when inoculated, and the serum of the relatively immune animals seems to have no special protective or curative power. In connection with this it is interesting to note that in cases of infection, especially with *T. Lewisii*, there are apparently successive attempts at destruction of the parasites, giving periods when the organisms are absent from the blood, only to return later, until in the rat variety they are finally disposed of successfully. In the more pathogenic forms they are fewer or even absent from the blood in the periods of apyrexia, but return and are

found immediately after death. Recent unpublished work seems to indicate that this is actually a sort of temporary immunity.

Research along these lines is going on continually, and we may hope for more definite results.

In connection with this subject it should be noted that the credit for the work done belongs chiefly to three sets of observers, the men working under the control of the School of Tropical Medicine at Liverpool, which is conducting research in these and other tropical diseases, both at Liverpool and in Africa, the men working under control of the United States Government in the laboratories in the Philippines, where very valuable and exhaustive work has been done, chiefly from an economic standpoint, as no cases of human trypanosomiasis have as yet been noted in those islands, and lastly to Novy and his assistants, who have spent their time on the cultural methods.

What May be Accomplished by the Organized Profession Toward Improving the Ohio State Medical Institutions

BY A. P. OHLMACHER, M. D., GALLIPOLIS

Superintendent of the Ohio State Hospital for Epileptics.

Whatever may be the cause, the medical profession is indifferent to the State medical institutions. As a body, the physicians of Ohio take little active interest in the several great medical establishments created and supported by the State. As an organization potent for good in the body politic, the confederation which I have the honor of addressing today has not lifted its voice in the effort to advance the administrative or medical interests of the State hospitals of Ohio. This condition is unfortunate, even lamentable; and it should be corrected, especially when it comes to be realized, as sooner or later it unquestionably must, that these institutions, so potent for great good to humanity and to science, look to the medical profession for their best inspirations and ideals.

One at all familiar with the situation cannot overlook the fact that the unsavory reputation of political interference and indifferent medical work still attaches to our State hospitals, notwithstanding a gradual improvement in recent years. These very features which arouse the distaste said to underlie and explain the profession's apathy can be remedied only by the profession

itself. It is the organized medical fraternity which embodies the mechanism essential for relief from these undesirable conditions, providing it no longer shirks its duty and responsibility. So long, however, as the medical profession, by its inactivity or indifference, countenances political intervention in the medical institutions of its State, so long will this régime continue, and so long will the medical and scientific work be hampered or restricted. To counteract this tendency and to improve the situation is plainly an obligation upon a cooperative body of physicians representing a given State. It owes this obligation not to itself alone, but to the great public which receives the benefits of the State institutions, which supports them, and which must look to the medical profession for advice and guidance in this, as in other questions of medical sociology.

There may be those who would challenge the statement that the medical institutions of Ohio are still embarrassed by political restraint. It can, however, readily be verified. Kindly allow me to cite you some confirmatory evidence: The question of party politics enters so prominently that everyone in close touch with institutional affairs looks for a complete reorganization of the State hospitals on the occasion of a change in political parties. Boards of trustees, the supreme governing agents in these hospitals, are appointed by the chief executive of the State and have a limited tenure of office as prescribed by law. To the credit of the more recent State administrations it may be said that these assignments have generally been of a high order, and that changes in the managing boards have rarely been made except for natural causes or for obvious reasons. Still, considerations of party or factional politics have operated as underlying factors in some of these appointments. As for the selection of the medical staff—the choice of the superintendent and the assistant physicians—the question of politics has rarely been brought into prominence. On the other hand, the reputation of political uncertainty and the meagerness of scientific inducements have often deterred the best-qualified physicians from seeking the service of the State's hospitals. Outside of the staff of physicians—the executive officers and employes—every medical institution in Ohio comes to feel the influence of partisan or factional politics in their preferment, and only the firm stand of a strong superintendent who insists upon merit as the prerequisite for stability of office prevents injury to the service. The vital question of appropriations rests in the hands of two committees from the legislature, and these committees very rarely have members qualified by previous experience or

study to pass intelligently upon the claims and needs of the various institutions. Very serious mistakes and grave injustice result from this system, for the really urgent needs of one institution may be disregarded while the less pressing claims of another may be granted. The present practice of allowing the large finance committees of the legislature to pay a hurried visit to the State institutions in order to determine the justice of the demands for financial aid is especially bad. We have but to look at the work of the recently adjourned 76th General Assembly to realize how completely the money's for the State hospitals are at the mercy of the ebb and flow of politics. This Assembly has sustained much adverse criticism for the manner in which and purposes for which it expended the State's funds: and added to this it gained the reputation of having awarded the State institutions as a whole relatively smaller appropriations than any of its predecessors in recent years, with the result that several of these State hospitals will be handicapped for the present, if not seriously crippled for the future: especially since the Governor was compelled to select them among the objects of his veto in retrenchment. It is indeed deplorable when even the State's benevolent institutions must suffer through the agency of party, factional or geographic politics, and assuredly the time for action on the part of organizations like ours has arrived.

Enlightened public sentiment is strongly set against political interference in the eleemosynary establishments of the State, and it requires but the active agitation of an organization with its units disseminated throughout the commonwealth to fan this prejudice into activity. As it is today confederated, the Ohio State Medical Association is in a good position to effectively aid the State hospitals in a propaganda looking to the elimination of politics, to the improvement of the service, and toward the fulfillment of those ideals of scientific medicine which all progressive physicians realize to be essential to the best and most fruitful activity of these institutions. That such results may be attained is illustrated by the recent experience in Illinois where the Chicago Medical Society has, since its reorganization, taken a decided step toward dictating the medical-administrative policy of the Health Department, the public general hospitals, and the county institutions for paupers, the insane, and the tuberculous. Following on the heels of this success by a municipal organization, the Illinois State Medical Society is now outlining a program looking to an energetic campaign in behalf of the hospitals of the State at large.

Realizing as I do from actual experience the conditions now

surrounding and entering into our State hospitals, well aware of their shortcoming in a scientific direction, but keenly cognizant of their vast possibilities as concern the advancement of medical science and the cause of humanity, I am impelled to advocate with all my power the immediate cooperation of this State Association in their affairs.

The Use and Abuse of the Artificial Drum-Head

BY E. L. MATHER, M. D., AKRON

Recent medical literature, at least that portion of it with which I am familiar, has been devoid of any discussion of the artificial drum-head. The pendulum has swung far to the surgical side of our field of labor, and while paper after paper has been written describing some new operation, or at least some modification of an old or well-known one, and has described its technic and brilliancy at great length, little has been said of the simple methods or ways by which our patients may be benefited. Sometimes, perhaps not infrequently, the results of these operations are not sufficiently satisfactory to convince us that we should, at once, adopt them to the exclusion of all other methods, especially if our patient is much opposed to an operation. This statement is largely true, not only of special but also of general surgery. We believe, therefore, that a discussion of the simple, safe and effective methods for improving defective hearing will be timely.

Artificial means for improving defective hearing have been employed for at least 2,000 years, the first hearing-trumpet, so far as I know, was used 96 B. C. Much has been attempted by way of improvement, and many appliances have, at one time or another, been placed upon the market. A large number have, of course, proved useless, and time and experience have shown that the conical hearing-tube has given the best results.

The first reference of which there is any record of the artificial tympanic membrane is found in a paper written by Marcus Banzer, in 1640. Delleau, Tod, and others, wrote on the same subject, but their suggestions were unnoticed. Yearsley, of Great Britain, in 1848, was the first to suggest and advocate the use of cotton pellets as a substitute for the natural tympanic membrane, and Erhard, in 1849, having no knowledge at the time of Yearsley's paper on the subject, proposed the same thing. Four years later, Toynbee introduced the rubber disc, and it

has since borne his name. He also published reports which showed a number of favorable results which at once attracted the attention of the specialists.

The observations which aural patients had made on themselves, having noticed a marked improvement in hearing, if they accidentally touched certain places in the ear while attempting to remove secretions, are responsible for the invention of the artificial tympanic membrane.

The improvement in some cases is astonishing; frequently no other method of treatment is of any effect whatever, but on the application of the artificial membrane, the hearing is at once improved. No one can foretell, in a given case, without a trial, whether it will be a benefit or not. However, if a patient consults us, in whom, after a careful examination and proper tests, we find the auditory nerve normal, and if there is a relaxed or flabby drum-head, or one in which there is a perforation, though it be never so small, we have neglected our duty and the welfare of the patient, unless we make repeated attempts to improve the hearing by using the artificial membrane.

Having ascertained that by its use there is an improvement in the hearing, the next question to be decided is the particular style or kind to be worn. Many varieties have been tried, among which we may mention Toynbee's well-known rubber plate or disc, a small section of rubber tubing, one end of which is cut obliquely and rests against the tympanic membrane or the remnant thereof, while the other extends into the concha of the auricle. Sometimes the outer end of this tubing is passed through a rubber disc in which there are two perforations, the rubber disc fitting snugly against the cartilage of the auricle. The reason for this is based upon the belief that wave sounds produce a certain amount of vibration in the auricular cartilage.

Another form is a small section cut from the side of rubber tubing. The section should be two or three millimeters in thickness and one centimeter long. To facilitate their application or removal a fine silver wire may be inserted in them. Several modifications have been made from time to time. Another form of artificial tympanic membrane is made by taking a thin, narrow strip of whalebone about five centimeters long, bending one end a short distance upon itself and wrapping cotton over the loop thus formed. Another is the small cotton ball first mentioned by Yearsly. The writer much prefers this to any other. Its advantages are manifold and patent, and the following may be enumerated: (1) The ease with which it is made. (2) Its

cheapness. (3) The nonirritating character of the material. (4) It forms an ideal method for applying to the interior of the ear any medicament which may be indicated. (5) It is entirely invisible, and can be worn without anyone being the wiser. (6) The action of the inferior maxilla in chewing or talking does not displace it, or cause any disagreeable noise, which is an objection to Toynbee's. (7) The same cotton need be used but once; therefore much trouble is saved in cleaning it. (8) The patient is easily taught to make it, also to place it in the proper position. (9) Ordinarily it is equal to any other in efficiency.

The size and shape of the pledget of cotton, and whether it should be used moist or dry, can be ascertained only by trial. My own experience and observation in regard to the indications for the use of the artificial tympanic membrane have resulted in the following conclusions: (1) A perforation in the anterior superior quadrant is an unfavorable case for its use. (2) A perforation in the anterior inferior quadrant sometimes yields good results. (3) If the ossicles are intact, but their articulations broken or separated, with a perforation in any part of the posterior half of the tympanic membrane, the chances for a favorable result are good. (4) If the incus is largely destroyed, and a large perforation is present, while the foot-plate of the stapes remains intact and freely movable, although its crura may be entirely destroyed, the result is nearly always excellent. (5) In cases in which there is no perforation, but a stretched, flabby and freely movable tympanic membrane, the chances are about even, provided the patient hears the tuning fork held in front of the nares while the external canals are closed.

The method by which hearing is improved, or the reason therefor, has always been a subject of discussion; among the reasons advanced should perhaps be mentioned the following: that the closure of the perforation in cases in which one exists increases the resonance of the tympanum; that the pressure on the manubrium restores the continuity of the ossicles; that the pressure on the stapes increases the tension of the labyrinthine fluid. However, it has never been fully decided just how it accomplishes the improvement, but it at least simulates the normal condition. This point is immaterial for the reason that the result is so satisfactory to the patient that an explanation is never called for by him.

I desire to mention the result in one case, that of J. S., a traveling salesman, who consulted me some two years ago with the following history:

The patient, age 41, suffered with deafness, marked with chronic otitis media purulent. He had suffered previously from typhoid fever and acquired syphilis. This, however, had been some years ago, and he had taken proper treatment. General headaches and formerly tinnitus aurium were very pronounced. He had also a foul odorous discharge in each ear and cholesteatomatous deposits in the attic. The right tympanic membrane was almost entirely destroyed. The left contained a large posterior perforation. The stapes in each ear was uninjured, the other ossicles were largely destroyed, the deafness was so great that very loud conversation was heard only at two feet. A watch or acoumeter could not be heard at all; the bone conduction was slightly minus. The discharge had been present for 25 years.

I thoroughly cleansed the ears and placed in position an artificial tympanic membrane of cotton, saturated with an antiseptic solution composed of carbolic acid, rectified spirits and glycerine. The improvement of hearing in this case was marvelous. The watch was heard easily at 12 inches, ordinary conversation at eight feet, and the acoumeter at 10 feet. Since he visited Akron only once in six weeks, I gave him a bottle of the antiseptic solution, secured for him proper forceps and taught him how to make and place in position the artificial tympanic membrane. He was directed to remove them every evening, to dry the ear thoroughly with pledgets of cotton wound on a tooth pick, and to instill a few drops of the antiseptic solution, allowing it to remain in the ear over night. He was directed to again thoroughly dry the ear in the morning before inserting new cotton tympanic membranes. This treatment completely cured the chronic discharge, and he reports that he has no trouble whatever in following his vocation.

I shall not take your time to report other cases, but will now take up the consideration of the abuse of the artificial drum-head.

I find the English language devoid of words to properly express my condemnation of the numerous frauds, which, through judicious and well-worded advertisements, are perpetrated on the unfortunates who have lost more or less of their hearing. If the statements of these manufacturers, which are published in pamphlet form and scattered broadcast, were honest, their business would soon be a thing of the past, but they unblushingly and unhesitatingly make the positive claim that all cases of deafness will be benefited by their appliances. One well-known advertising firm, who places upon the market a so-called ear-drum, consisting of a small hollow rubber cone, much like the end of a small finger-

cot, by taking advantage of the credulity and anatomic ignorance of the laity, makes the most preposterous and unreasonable statements without fear of contradiction, and is enabled to sell large numbers of these cones at \$5 per pair.

Among the extravagant claims which they make may be mentioned the following:

“(1) It is an entirely new invention, perfect in shape, and fits the orifice of the ear with such precision that it is impossible for a patient to tell that they are in the ears.

(2) That it is the most practical device known for the relief of deafness and roaring in the head, and so simple that a six-year-old child can insert and remove it without injuring the ear.

(3) That it is the only device in the world that will increase the hearing power where the natural drum of the ear and also the hearing power are perfect (an improvement on perfection).

(4) That it is the only device in the world that will refract and focus waves of sound, and assist the hearing power.

(5) That they are never sent on trial, therefore everyone can rest assured that the drums they receive have never been tried or worn by anyone.

(6) That the price is within the reach of all, and is not more than the mere consultation fee of any aurist who could not and would not guarantee to help your hearing for any amount of money that you might offer. (An unintentional compliment paid to the honesty of the profession.)

(7) That it is a perfect protection to sensitive ears against cold drafts of air, shocks from artillery, concussions in boiler and blacksmith's shops, dust in mills, etc. Many people wear them for this purpose alone after the hearing has been restored.

(8) It is the only device in the world that can be worn day and night with pleasure and satisfaction, and does not have to be removed when washing the ear.”

This firm also states “that over fifty years ago, Dr Yearsley made a very valuable discovery whereby the hearing in certain cases could be improved by an artificial application to the drum of the ear,” but it is very careful not to explain what this artificial application was.

The only cases which this firm says their drums will not relieve are those in which the auditory nerve is paralyzed, or in cases in which one has been born deaf.

It is only fair to state that the writer knows of one person whose hearing has been improved by this device, while on the other hand he has seen cases in which their use decreased the hearing power and caused so much irritation and inflammation that they were abandoned at once.

It is unnecessary to be more explicit or to carry these statements farther to show the abuse of these devices.

The world is indebted to the medical profession for the good which has been done by the artificial ear drum; but the good results obtained by its legitimate use have only been an incentive for unscrupulous men who saw in it an opportunity to reap a rich pecuniary reward at the expense of an unsuspecting public which fails to recognize the difference between science and commercialism.

A GREAT AGENCY in the people's hygienic education is the sanitary bulletins and reports of city and State Boards of Health. According to the character of the individual men, or perhaps individual man, of these boards, will, of course, depend the character of these bulletins. Some will be scientific, and even ultrascientific, seeking only to stimulate original research and the sources which ultimately make and mold popular opinion. They have, to be sure, their place and proper function, but one cannot help being interested in those which aim directly at the education of the common people in sanitary affairs and health preservation. These should be widely distributed and it would be money saved if the local city, town, or State would appropriate the money to send the reports to every taxpayer in the district concerned. Such documents may well keep in mind the statistics and purely scientific aspects of reform, if mixed in judicious proportion with food better fitted for popular consumption—predigested as it were. It should not be forgotten that our scientific knowledge of preventive medicine is a long way in advance of the real possibility of lessening the deathrate, if the well-understood scientific laws were put in practice. Most commendable in the respect suggested is the admirable *Monthly Bulletin of the Indiana State Board of Health*. Every State should send such a monthly missionary tract to its householders.—*American Medicine*.

The Cleveland Medical Journal

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EDITORIAL

The American Medical Association

The fifty-fifth annual session of the American Medical Association held in Atlantic City, June 7-10, was in every way an eminently successful meeting. The attendance was large, the largest on record, and the programs presented before the various sections were of great interest and scientific value. Those who were fortunate enough to be present, as well as those less fortunate who have since read the various published essays on medicine and surgery, cannot fail to be impressed by the immense power which can be wielded by an Association of this character, and must find cause for honest congratulation that the united body of the profession have achieved so much during the last five years in the way of permanent and successful organization.

THE PRESIDENT'S ADDRESS

In his address on Medical Education, the President, Dr John H. Musser, covered in an exhaustive resumé the *status quo* of education as it exists today in the medical and correlated sciences. It is not our purpose to make an abstract of this interesting address but we cannot forbear calling attention to one point

brought out by Dr Musser, which is perhaps too often overlooked, and which should be kept constantly in mind if we would accomplish a successful reform. He says, * * * "Survival of the old dictum that a patient's woes are confidential supports too often the attending physician in failing to realize his responsibility to the community while attending to the welfare of his client. For this as well as for personal reasons he readily connives with the patient to thwart civic authority." That the attitude conveyed by the above is all too often assumed must be frankly admitted, and surely any step which will bring about a proper *esprit de corps* between the authorized sanitary civic authorities and the profession at large will be an immense gain to every community, and is a goal which should be earnestly sought after. Dr Musser suggests that the section devoted to hygiene and sanitary science, which he urges, it seems to us very properly, should receive a larger measure of support in the future than it has in the past from the organized body of the profession, could take this matter up.

THE ADDRESS IN SURGERY

Along no other single line of medical science does the mark of progress stand out in the same clear cut silhouette as in the field of surgery, and in the oration on the Association of Surgical Lesions of the Upper Abdomen Dr Mayo brought to a focus our present knowledge and the possibilities of the future in this special field of surgery. He well says that the medical man must haunt the operating theater as he has haunted the autopsy-room and the laboratory. Not in the sense that we can do away with a single iota of our knowledge of pathology, he says, "We must have more treatment and less pathology." Dr Mayo pays an appreciative tribute to those workers who, more especially in the field of pancreatic pathology, have cleared up many a doubtful question and made it possible for the surgeon to work in intelligent cooperation with the internist and pathologist, and he urges the point that more treatment is not only possible but absolutely necessary in order that we may profit by the knowledge gleaned by a study of the pathology of this or any other obscure field. It should not be forgotten by the reader that much of our knowledge of the pathology of the upper abdomen is due to the indefatigable surgical workers in this field, and that only through such observers and interpreters of the conditions met with, as Dr Mayo himself, comes a satisfactory knowledge of the early pathologic lesions in this domain of surgery, which may lead to results as striking as any in the past history of operative surgery.

The Sliding Scale in Fees

A St. Louis judge has recently rendered a decision against a surgeon who charged a fee far higher than is usual for the services rendered, but not out of proportion to the wealth of the patient. The argument uses as a basis the seriousness of the disease, the skill employed by the surgeon, his time used and the results obtained, but it wholly fails to recognize the value of the individual patient's life. From a theoretic standpoint one life cannot be regarded as any more valuable than any other, but commercially this same proportion does not hold good. In suits for damage the amount claimed is usually based upon the earning capacity of the individual for the period of disability, the higher salaried the man the larger the amount of the claim. If this principle be allowed in law it seems reasonable to regard the life of a wealthy or prominent man of more value from a purely commercial standpoint than that of a poor or obscure individual. The care and attention in either case should be the best that the physician can exercise, but it is evident that the anxiety and worry to the medical attendant must be greater the higher the social position or the greater the wealth of the patient. This feeling is often increased by the knowledge that the death of such a patient will always result in more loss of prestige among the relatives or friends whether there is just cause or not, and hence the more prominent the physician the greater the responsibility.

That medical services cannot be classed as an ordinary commercial commodity goes without saying; they are rarely refused even if the patient is wholly unable to pay, and in a large proportion of the cases the usual fees have to be reduced in order to come within reach of the patient's means. It would hardly hold in a court of law that the rich patients should be charged in excess so as to make up for the deficit, but on the other hand if the sliding scale has to be adopted in the case of poor patients, it seems only just to the medical profession to make use of it in those who can well afford to pay more than the usual fees.

Independence Day

Even as we are preparing to go to press the stillness of the early morning and the late afternoon is occasionally broken into rudely by the loud and startling report of the toy pistol or the cannon cracker. These are the warning signals of that glorious day when death shall reap its annual harvest of over-enthusiastic and careless victims who range in age from that of the small

child to adults old enough to know better. We are gratified to know that the City Council has passed an ordinance making it a misdemeanor to use, give away or sell a toy pistol or blank cartridge in this city on the Fourth-of-July; but will this ordinance protect the innocent victim of their use from his unnecessarily tragic end? In a few days we shall see whether the lesson of a year ago has been forgotten.

Another phase of our national holiday which is really a menacing one, but which has had all too little serious consideration, is the question of noise and its effect upon those critically ill in home and hospital. While it is true that there are very definite police regulations for the use of fire-crackers and fire-arms in the neighborhood of hospitals and in the public streets, it is well-known that they are largely inoperative because not enforced. It is, therefore, easily conceivable that the general fusilade of nerve-racking noise, which goes on promiscuously without a thought for anything save self gratification, may undo weeks of careful nursing for many an individual critically ill. Independence day indeed!

It would be well if the civic authorities and the profession would cooperate in an effort to control, at least in every instance of need, this utterly unnecessary and criminal abuse of the privileges and meaning of the day.

The Walter Reed Memorial Association

One of the most gratifying incidents of the recent meeting of the American Medical Association was the enthusiasm shown in the subscription to the Major Walter Reed Memorial of about \$8,000 by the members of the profession alone. Dr W. W. Keen reported the work already accomplished by the Committee which has the matter in hand, and Dr Welch of Baltimore and Dr Dilley of Pittsburg paid glowing tributes to Major Reed whose untimely death was a national calamity. Cut off in the very prime of his career, the profession, the army, and the country not only lost an intellect of the highest type but in him a man of rare character and personality whose gentleness and kindness were felt by everyone who came in contact with him. He was a man of whom it can be said without a suggestion of exaggeration that the world was vastly better in more ways than one for his having lived in it. In order to facilitate the work of the Committee in charge of the memorial fund, the Walter Reed Memorial Association has been incorporated under the laws of the District

of Columbia. Subscriptions to the fund may be sent to C. J. Bell, Esq., President of the American Security and Trust Company, Washington, D. C., who has consented to act as treasurer. It is hoped to raise at least \$25,000 for the purpose of this memorial, a sum which should be quickly subscribed and to which everyone of us should take the greatest pleasure in contributing something.

Arteriosclerosis

The discussion of the subject of arteriosclerosis at the recent meeting at Atlantic City was extremely interesting both to the laymen and the physician, and not a little evidence was brought forward which must revolutionize in some measure our ideas as to the origin of arterial changes. Dr Cabot's statement as to the effect of the excessive use of alcoholic liquors as a causative agent of arteriosclerosis seems well-supported by the figures given for the Massachusetts General Hospital. In a series of 283 cases in which there was a history of an excessive consumption of alcoholic liquors only 18 individuals, or 6%, showed any arterial thickening so far as could be determined by an examination of the heart and peripheral vessels. All syphilitics and individuals over 50 years of age were excluded from this series, and further, if all individuals over 40 years of age were excluded the percentage showing arterial changes would fall to the astonishing figure of less than one and a half percent. This observer also reported that his investigations carried on at the Massachusetts Hospital for Inebriates and at the Long Island Hospital (Boston Harbor) showed definitely that alcoholism exerted but slight influence as an etiologic factor in arteriosclerosis.

In a series of cases reported by Thayer, studied with a view to determine the presence of arteriosclerotic changes in different conditions as evidenced by palpable radials, in alcoholism the percentage was 53.3 while from overwork the percentage was 62.2. The conclusions reached by this observer, while not reducing the importance of alcoholism quite to the figures given by Cabot, was that the element of hard physical labor played a far larger part in the production of arterial changes than does alcohol.

The conclusions arrived at quite independently by these two observers are extremely interesting and suggestive, and should perhaps carry a crumb of comfort to the confirmed alcoholic and at the same time be set forth as a warning against the over-strenuous life so characteristic of this period.

If unfortunately these conclusions are correct, and we see no

reason to doubt them, we physicians as a class must become peculiarly liable to arterial changes as we advance in years. We wonder whether any given group of medical men would show a preponderance of arterial changes over a similar group from the ranks of any other profession.

Experimental Researches on the Pathology of Exophthalmic Goiter

The interesting volume of Dr Wm. H. Thompson on Grave's disease, as he prefers to call the affection on account of his disbelief that the condition of the thyroid gland has an important etiologic relation to the disease, contains an interesting summary of the experimental work bearing upon the physiology and pathology of this condition. It is to be noted that the effect of thyroidectomy varies with the animal upon which the experiments are performed. In carnivora the operation is soon followed by tremors, and these by fatal tetanic spasms and convulsions. Omnivora are much less severely affected by the operation; Horsley found that monkeys survived much longer than dogs, and if kept warm they developed a condition similar to myxedema in man. Herbivora seem to get along quite well without their thyroids. Furthermore the effects of thyroidectomy vary, not only according to the habitual diet of the animal, but also according to its age. Even in dogs, if they are old, thyroidectomy may neither be fatal nor accompanied by the usual symptoms. In keeping with this fact it may be noted that in elderly people the gland degenerates so that the normal structure can with difficulty be recognized and that in them postoperative myxedema scarcely occurs at all. These facts would imply that the function of this gland ceases in time to be necessary to life, and, therefore, it belongs to the class of temporary and nonpersistent organs, like the thymus, whose function, though essential for a time, yet becomes no longer so after certain stages of growth have been completed. This fact is important since at times Grave's disease does occur late in life. Recently the whole subject has been given another turn by researches on the functions of the small bodies named the parathyroids. In some animals they are quite separate or separable from the thyroid, and in the rabbit for instance, in which the removal of the thyroid has little effect, the removal of the parathyroids alone is followed by the development of a train of nervous symptoms similar to those which have been described as occurring in the dog. That there is a virulent poison that reaches the nervous

system through the blood when the parathyroids are removed, and which does not act in health because it is neutralized in the parathyroid cells, or by their secretion, is indicated by the fact that in dogs the fatal tetany, rapid breathing, etc., are immediately ameliorated by bleeding the animal freely, and injecting an equivalent amount of normal saline. The poison then accumulates for 24 hours and the tetany, etc., returns, to be again relieved by the same procedures, showing that they wash the poison out. The origin of the poison is not known, but in favor of its food origin may be placed the fact that the symptoms are less violent and appear later in dogs which are kept on milk than when they are given a pure meat diet, further a parathyroidectomized dog which was fed exclusively on bread and water did not develop tetany in the 20 days he lived after the operation.

Now that the thyroid is proved to be a compound organ all theories concerning it will have to be adjusted, and its action will have to be analyzed with reference to the part played by its functionally different structures. It appears, however, that the thyroid is connected with general metabolism and that deprivation of its secretion leads to the more chronic symptoms characteristic of myxedema, while removal of the parathyroid alone leads to acute intoxication with nervous symptoms. That neither hypertrophy, atrophy or degenerations of the thyroid gland are associated at any time with the symptoms of Grave's disease and that this condition may or may not be accompanied by changes in the gland is quite conclusive evidence of the etiologic independence of these conditions. The relation of the parathyroid bodies to this condition is not as yet fully determined. The effect of their removal seems positive; in the few cases of Grave's disease in which their condition was observed at autopsy, they seem not to have been found or to have been smaller than normal in size.

Dr Thompson holds that the results of treatment based upon the theory of the gastrointestinal origin of the toxemia of Grave's disease, as suggested in the review of his book which appears in another column of this number of the JOURNAL, are so unmistakably superior to any measures, whether medicinal or surgical, devised on the theory of the thyroid origin of the disease, that they confirm the inference which physiology itself suggests, that diet and digestion, and disorders connected therewith, are the chief factors in the etiology of Grave's disease, and that the true cause is the failure of the normal destruction of these toxins, which possibly depends upon some abnormality of the parathyroids.

The Licensing of Dogs

An unusual number of persons seem to have been bitten by dogs in Cleveland this year, and the City Council has been urged to take some action in the matter. The owner of every dog is supposed to list the same for taxation upon the tax duplicate, but there are many dogs which seem to be without owners at the time of year that the returns are made. At present there is no system of licensing enforced, dogs are not required to wear tags, and, in consequence, there are many useless curs running at large about the streets. If owners were compelled to register and provide tags for their dogs, and if all dogs found without tags were humanely destroyed, the evil would be considerably lessened.

If people were obliged to pay for the privilege of keeping a dog they would be more apt to keep a good one, or none at all. If a better class of dogs were kept they would receive better care, and any symptom of disease would be attended to. There is considerable sentiment against muzzling all dogs, and this measure is probably unnecessary, but there should be provisions made to enforce the use of a muzzle on every vicious dog which is allowed to remain within the city limits.

The popular fallacy that immediate killing of a dog will prevent the development of rabies in the person it has bitten renders the proof of the existence of rabies in the dog difficult. By confining and observing the animal the necessity for specific treatment of the bitten person at the Pasteur Institute might be made more clear. Fortunately the vast majority of dog bites are followed by no ill results, but an occasional case of hydrophobia shows the necessity of careful treatment of all cases.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Uranium: W. R. Jones, in the *Virginia Medical Semi-Monthly*, claims that uranium nitrate is of decided

value in diabetes. Uranium belongs to the class of bodies which influence the form of energy manifested in light, and this fact is interesting from a therapeutic standpoint in view of the various modern applications of radioactive substances. He has noted under its use a fine desquamation of the skin which naturally reminds one of the effect of the X-ray upon the skin. This action of uranium nitrate suggests its use in many forms of chronic skin disease, and it will probably occupy a higher position of usefulness than arsenic. Uranium nitrate is best given in solution in the dose of one-sixth to one-half grain four times a day. It has a powerfully

astrigent metallic taste which is very persistent. In every case of diabetes in which he has used it, great improvement has resulted, and in one case complete recovery. The salt evidently has a powerful effect upon metabolism and there is a progressive improvement of the patient's general condition while under its administration. It gradually relieves the tormenting thirst, the extreme weakness, the excess of urinary secretion, and the attendant glycosuria. A case of diabetic ulceration, which resisted all other means of treatment, rapidly healed under the internal use of the salt. While taking uranium the usual dietary restrictions are imposed.

Thrush:

H. Illoway states, in the *Medical News* for February 27, that while thrush is most frequently a trifling affection, readily cured, it at times becomes a very serious trouble, so serious that it may threaten the life of the child. In the lighter forms of thrush in which the parasite has as yet spread but little and its threads have not penetrated deeply into the epithelial layer the treatment is not a very difficult matter. Here he prefers the hyposulphate of soda:

R Soda hyposulphate grains xx
Aqua distill..... 5 v
Glycerin 3 iij

Sig. One teaspoonful every two hours internally and applied topically with a large camel's-hair brush. In severer cases he has used

R Tincture Iodin 5 ss
Glycerin 5 iijss

Sig. Apply with a large camel's-hair pencil to the tongue, gums and cheek. By this application he produces a remarkable effect. He believes that it surpasses any other that has hitherto been recommended.

Pneumonia:

J. H. Musser, in the *International Clinics* (Volume IV, 13th Series), states that the only remedy for which specific properties are claimed in pneumococci infection is the so-called antipneumococcic serum. Of this it may be said that its real value has not been definitely determined, and the general professional opinion is one of hope rather than of satisfaction. He has used it in a sufficient number of cases to enable him to say (1) that it has not seemed to cut short the course of the disease, and he is satisfied that it has not brought about nor hastened the crisis; (2) that it has no influence on the extent of the local inflammatory lesions; (3) that possibly it exerts some little influence for good on the toxemia and (4) that it does no harm. The only ill-effects he has observed from its use was a moderate diminution in the amount of urine in several cases, and he accords to it a qualified approval.

Enuresis:

John Zahorsky, in the *American Therapist* for October, 1903 (quoted from the *Interstate Medical Journal*), believes that the theory of cerebral involvement in enuresis is in the ascendant, and therapy indicated to increase the inhibition of the cerebrum is the most rational. The practice of awakening the child at night to empty the bladder does not effect a cure. The child's will must be stimulated to retain it. The treatment advocated by Pendergast acts as a stimulant to the nervous system, and may be said to be a very powerful remedy for any hysterical tendencies. This method as employed in

a boys' orphan asylum is to strip the boy and have him stand in an empty bath tub. A basin or vessel with a spout to it like a watering can is filled with cold water and poured over the shoulders and down the back of the subject. In nervous delicate children one dash of water is sufficient for application; in the sluggish phlegmatic lads, the dose might be repeated. The boy is immediately rubbed down, dressed in night clothes and put to bed. Sponging the back with cold water does not have the same value as douching. He summarizes the treatment which has given him considerable success as (1) two doses of a diuretic during the day; one at 9 a. m. and the other at 2 p. m. He usually prescribes the alkaline citrates with spirit of nitrous ether, but he has also used caffein and diuretin and sodium benzoate. (2) Give one dose of atropin at night. Instead of atropin he has used *rhus aromatica* and also antipyrin. (3) He has used Pendergast's method of douching the back.

Creosote Carbonate: Scott and Montgomery, in the *Therapeutic Gazette* for December, 1903, summarize their conclusions based upon 67 cases of pneumonia with 10 deaths as to the value of the carbonate of creosote in the treatment of pneumonia as follows: (1) Carbonate of creosote causes no irritability of the stomach; in no case was there vomiting or any disturbance of the digestion. No disturbance of the urine was noted. Adults were usually given 10 to 15 minims in capsules every four hours; children from three to five minims every fourth hour. (2) The degree of toxemia in all cases, barring the fatal ones, was mild. This is a difficult point to estimate, the extent of lung involved, temperature, etc., having little or nothing to do with it. (3) In the cases treated pseudocrises (15) were common, but bore no relation to the crisis or mortality. (4) The mortality percentage (14.9) secured in 67 cases treated with carbonate of creosote does not corroborate the unusually low figures secured by Wilcox, Van Zandt and others; nor does this percentage (14.9 mortality) prove that the results are due to the treatment by creosote carbonate, as equally good results have been secured in past years by other methods in the same hospital. (5) The study of the clinical effects of carbonate of creosote should be continued; the dosage should be increased and the effect upon the toxemia carefully watched.

Ichthoform and Ichthargan: James Burnet, in the *Lancet* for March 12, summarizes the uses of the newer ichthyol compounds, ichthoform and ichthargan. The first is a compound of ichthyol and formaldehyd, the latter a silver salt of ichthyol. These he believes to be the best of the newer ichthyol derivatives. Ichthoform is a brownish black powder, practically odorless and tasteless and insoluble in water. Ichthargan is a similar powder containing 28% of silver and is readily soluble in water, either warm or cold. Ichthoform is both antiseptic and astringent, is practically nontoxic and in contact with diluted alkalies gradually splits up into its two components, ichthyol and formaldehyd. He has found it of value as (1) an intestinal astringent and antiseptic; (2) as a dusting powder; (3) as an ingredient in ointments and (4) as a means of impregnating gauze. The results in infantile diarrhea have been excellent in doses of two grains every six hours in a little jelly to a

child one year old. The dose for children ranges from two to 10 grains three times daily, and he prefers to give it sandwiched between two thin slices of buttered bread. In tuberculosis lesions of the intestinal tract and in cases in which diarrhea is a prominent symptom the adult dose is from 10 to 15 grains three times daily. In mild cases improvement is noticed even on the third day after administration, and within a week as a rule the diarrhea was found to have ceased. In obstinate cases 30-grain doses were sometimes required. He concludes (1) that it is one of the most efficient antiseptics we at present possess, more especially in cases of intestinal disease in which its action is more certain and less harmful than salol and similar drugs. (2) It forms an excellent substitute for iodoform in all cases in which the latter is indicated. It is odorless and practically nontoxic. (3) For internal administration it is best given in small doses frequently repeated. Large single doses do not give the same results and are more likely to produce untoward symptoms. As much as two drams may be given in one day if divided into small frequently-repeated doses. Ichthargan is a very efficient agent in gonorrheal urethritis. He used solutions of 1 to 5000 to 1 to 500, beginning with the weak solution, and in the majority of the acute cases cures followed in three weeks, the injection being used three times a day. In chronic cases 1 to 500 was never exceeded and proved of value. In gynecologic cases a 10% solution in glycerin is useful. In ointment in varying strengths its use proved of aid in dermatologic cases as well as in atrophic rhinitis in which it was of exceptional value. Internally he recommends it in gastric ulcer and believes these two agents have a wide sphere of therapeutic usefulness.

Ergot:

Alfred T. Livingstone, in the *Medical News* for March 5, considers the therapeutic application of ergot in alcoholism, morphinism and the drug habits generally. He asserts that in these cases the prime indication is to tone the relaxed dilated vessels as bring about as quickly as possible equilibrium of the circulation. While this may be secured wholly or in part in several ways, as cold to the head and spine, galvanism, dry cupping over the spine and massage, the most effective method is by hypodermic injections of ergot, which are most certain and prompt in their action. The first step is to wholly and immediately discontinue the use of the narcotic and so place the patient as to absolutely prohibit access to the drug or any substitute. He at once begins the application of ergot because he knows that within from 24 to 36 hours there will begin in extreme cases a violent reactionary stage, the basis of which will be a dilated state of the blood-vessels in the nerve centers which may be modified by the action of ergot upon the muscular coat. At the same time he gives a mercurial purgative and after a few hours a saline. This avoids the irritative effect of a loaded bowel upon an irritable or excited brain or cord. He gives abundant fluid and easily-digested nourishment every three hours, as a good form of beef, and the bowels should be opened at least once a day. The frequency of application of the ergot will depend upon the degree of the addiction and upon the general condition of the subject when the use of the drug was discontinued. The larger the daily dosage had been, and the greater the nervous prostra-

tion at the beginning of the treatment, the greater is likely to be the reaction following the discontinuance and therefore the greater should be the effort to prepare against this reaction. In general the range would be from two to three doses per diem to every two hours in extreme cases, a dose being one-half dram of Squibb's new extract of ergot for hypodermic use, which is approximately the same as that which Dr Livingstone employs. The morphin habit is the most difficult to treat successfully, the worse case of the alcoholic class being simplicity itself compared with these if ergot is properly used. He states that the so-called "gold cure," to use a slang phrase "is not in it," as compared with the ergot cure, and no matter what the degree of addiction he does not for a moment consider the plan of "tapering off." In no case after the first 48 hours has he ever had a request from the subject for his drug or a substitute, or ever seen any evidence of any such desire. It is desirable to use in the treatment none of the narcotics or even hypnotic class of drugs. He is radically opposed to "tapering off," but in the worst cases of morphin or opium addiction one might give with two of the hypodermics or ergot each day about one-tenth the amount of the drug daily consumed; reduce this 50% daily for eight days, then discontinue, and the ergot should be continued for several weeks after dropping off the morphin.

Insomnia:

In *Medicine* for April, Charles J. Aldrich states that there is absolutely no safe hypnotic and the best one for a given case will vary greatly according to the individual and his condition. He places paraldehyd first as regards safety, and chloralamid and chloralose are claimed to be safer than chloral although much slower in action. He has found sulphonal and trional very useful, and bromids the least harm in the simple cases, and advises their trial before using any of the more powerful hypnotics. In fact, he believes before resorting to any of these powerful somnifacients it is wise to use some of the older remedies as valerian, sumbul or asafetida, singly or combined. Supulin, hyoscyamus or cannabis indica will occasionally prove of signal benefit, and in simple insomnia, particularly that of neurasthenia, he has found a combination of tincture of passion flower with yellow jasmine and one of the bromids of special value. He asserts that none of these cases, unless distinct contraindications exist, should be treated without hydrotherapy. In the insomnia of the climacteric he is in the habit of prescribing in a glass of hot water at bedtime two ounces of camphor water to which 10 to 20 grains of bromid of potash and some tincture of sumbul and hops have been added. He cautions against the use of opium in the pains of hysteria and neurasthenia, and has often found codein in small doses with methylene blue most effective in these so-called functional pains. He strongly advises the use of calcium chlorid in the insomnia due to general pruritus, and while unable to explain its method of action has been gratified with its effects.

Cold in the Head: *American Medicine*, for March 12, states that adrenalin or suprarenalin is the best of all palliatives for the acute obstruction of the nasal passages present in this condition. In order not to waste the expensive drug the parts should first

be thoroughly cleansed of accumulated mucus or mucopus by a hot saline solution or by an alkalin detergent spray such as Dobell's solution. The sup-
rarenalin solution may be applied topically in the strength of one part to one thousand by a cotton wad firmly twisted on a delicate carrier of wire, and the relief thus given frequently lasts from 12 to 24 hours, or the patient may be allowed to spray the nasal passages very lightly with a solution of from one part in four thousand to one part in eight thousand. After its use a warm oil spray should be used as a protective to the parts. For this five grains of menthol to one ounce of benzoinated liquid petrolatum is recommended. A useful combination is represented by the following formula which should, however, be made to meet the necessities of individual cases, and based upon a consideration of the age, the condition of the eyes, susceptibilities to drugs, and the condition of the heart, lungs and kidneys. The prescription here given containing 1/2000 grains of atropin in each dose is for an adult:

Atropin Sulphate, 1/100 grain.

Camphor, 2 grains.

Quinin, 5 grains.

Bals. Peru or other excipient, q. s.

Make into 20 doses in pills, tablets, capsules, cachets, or powders, diluted with sufficient milk-sugar. The dose is one (capsule) given usually from about every half hour to every four hours according to the effect. At first the interval between doses may be even shorter than 30 minutes, and when relief is obtained they may be lengthened to even more than four hours. Sometimes tincture of belladonna is advisable instead of atropin. As a rule the belladonna is preferable for children and so little as 1/10 drop every 10 minutes for a certain number of minutes until effective may be given. Cocain should never be employed in any case or under any circumstances, unless it be the only cardiac stimulant available in an emergency calling for it. Camphor, however, is infinitely superior for this purpose.

Carbonate of Creosote: In the *American Therapist* for February, F. C. Simpson states that since Van Zandt's paper on the use of creosote in pneumonia he has been using creosote or carbonate of creosote. He uses it in larger doses than is usually recommended giving from 10 to 15 drops every three or four hours, and has had the best results from its use. It certainly improved the respiratory functions and reduces fever, and never seems to produce the gastric disturbances that creosote so frequently causes. When given early the temperature subsides, the respiration improves, and in the course of 24 hours the condition of the patient shows a marked general improvement. In later stages while the results are not quite so brilliant, they are very satisfactory. The cough, pain and temperature are very much changed, also the character of the sputum, and recovery is much hastened. The strength of the patient must be supported, and the secretions and excretions must be looked after.

Academy of Medicine of Cleveland

The eighteenth regular meeting of the Academy of Medicine was held on Friday, May 27. The President, George W. Crile, was in the chair.

H. B. Ormsby read a paper entitled "Tuberculosis: Is it a Communicable Disease? With the Report of Three Fatal Cases by Communication."

The author drew attention to the danger of infection from dust in cleaning, and strongly advised that when possible dry cleaning should be replaced by the moist process. As an example of the communicable nature of the disease, he cited an instance of a healthy family moving into a house which had recently been occupied by a consumptive. One of the rooms was much soiled by sputum and within a comparatively short time the two occupants of this room and one of the girls, who had helped clean the room, acquired the disease and soon afterward died. The paper was discussed by Drs L. K. Baker, John G. Spenser, Doolittle and William E. Bruner.

C. F. Hoover next presented a paper on "Fluid in the Pleural Cavity Simulating Pneumonia." According to the text-books fluid in the pleural cavity is generally shown by dulness on percussion with absence of the breath sounds, but Dr Hoover pointed out that in a far larger proportion than is generally believed, loud bronchial breathing may be heard over the site of the fluid. He quoted several cases in which different varieties of fluid existed in the pleura and in all of which there was marked bronchial breathing. Auscultation with the unaided ear was strongly advised as it often furnishes information not obtainable with the stethoscope. This paper was discussed by Dr Sihler.

D. S. Hanson read a paper entitled "Some Cases of Placenta Previa." After considering the causes, symptoms and treatment of this condition, Dr Hanson reviewed seven cases which he had encountered. Attention was drawn to the fact that the treatment must vary with the individual case. The paper was discussed by Drs F. S. Clark, Sihler, Kelley, J. J. Thomas and M. Metzenbaum. This paper will appear in a subsequent issue of the JOURNAL.

J. J. Thomas showed a specimen of fetus papyraceous which had reached a development of six months before perishing. It was accidentally observed after delivery of the placenta of its eight-months old living twin. Dr Thomas also showed a fetus with spinal bifida.

William E. Lower reported the action of the Committee which had been attempting to secure legislation by the City Council to prohibit the sale and use of toy pistols and cannon crackers. A vote of thanks to this Committee was passed by the Academy.

The nineteenth regular meeting of the Academy of Medicine of Cleveland was held on Friday evening, June 17, with the President, George W. Crile, in the Chair.

The first paper entitled "A Report of Four Cases of Stone in the Pelvic Portion of the Ureter," by George E. Brewer, of New York, was read by Carl A. Hamann, as Dr Brewer was unable to be present.

Lewis G. Cole, of New York, read a paper upon "The Detection of Renal and Ureteral Calculi by the Ray of Selective Absorption (X-Ray)

With Demonstration of X-Ray Plates of the Kidney Region." Dr Cole discussed the special technic necessary to obtain good results and detailed some interesting facts which disproved some views generally held. Thus instead of a 15-minute exposure which is regarded as necessary by most workers in renal skiagraphy, Dr Cole finds exposures of less than two minutes, and even as low as 14 to 7 seconds sufficient, if the apparatus is working satisfactorily. This short exposure obviates all chance of burning the patient. The essential features of the apparatus necessary for this work are a low vacuum tube, moderate frequency of interruptions and a strong coil; rays of strong actinic power, great volume and low pressure are thus obtained. All varieties of calculi, even those of pure uric acid, were found to give satisfactory pictures. A large number of excellent negatives were then exhibited, and the importance of negative as well as positive results in diagnosing stone was emphasized.

The papers were discussed by C. A. Hamann, W. E. Lower, George S. Iddings, M. Metzenbaum and G. W. Moorehouse.

The seventeenth regular meeting of the Clinical and Pathological Section was held at the Medical Library on Friday, June 3. The chairman, C. A. Hamann, was in the chair.

R. E. Skeel read a paper on "Cæsarian Section for Placenta Previa." This patient had had an abdominal section at which curetage and suspension of the uterus, a Schroeder amputation of the cervix and anterior and posterior colporrhaphy had been performed. Subsequently she became pregnant and placenta previa developed. There was also a transverse presentation of the fetus. Owing to the rigidity and high location of the cervix, the central location of the placenta and the profuse hemorrhage, a Cæsarian section was performed. Both mother and child survived. Drs F. S. Clark and W. H. Humiston discussed the paper. This paper will appear in a subsequent issue of the JOURNAL.

C. E. Ford presented a paper entitled "Report of a Case of Salivary Calculus with Exhibition of Specimen." The calculus weighed 62 grains, and was lodged in Wharton's duct. It formed a large sublingual tumor and had been causing trouble for nearly a year. Its removal was easily accomplished. Dr Ford then gave an exhaustive review of the literature upon this disease. The paper was discussed by Dr Hamann.

J. P. Sawyer read a paper on "The Incomplete Form of Basedow's Disease with Preliminary Note on Certain Observations of the Blood." Attention was called to the fact that a large number of cases of exophthalmic goiter were overlooked because the more striking symptoms were not well marked. Dr Sawyer had carefully studied a large number of these cases and reported an interesting observation upon the blood. In almost all the cases he found the relative numbers of the small lymphocytes and large mononuclear leukocytes transposed, the former being greatly reduced and the latter markedly increased in number. The paper was discussed by Drs Rosewater, Jones, Lichty, Waugh and Aldrich.

C. J. Aldrich exhibited a case of epilepsy in which the administration of potassium bromid caused an eruption of vesicles upon the cornea. On stopping the bromid the vesicles disappeared.

Book Reviews

A Text-Book of Obstetrics, by Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic, and the Philadelphia Hospital, etc. Fourth edition, revised and enlarged, with 746 illustrations, 39 of them in colors. Philadelphia, New York, London. W. B. Saunders & Company, 1903.

The author of this well-known work draws particular attention to the fact that the shortcomings of the attending physician at labor furnish the greater part of the material for the gynecologists and that, with more care and attention at this important period, subsequent operative procedures or chronic invalidism could often be avoided. For this reason considerable space is devoted to the management of difficult and abnormal labors so as to avoid unnecessary injury. He discusses puerperal sepsis very fully as it is one of the principal sources of gynecologic ailments in later years and if proper precautions be observed can be almost entirely prevented at the puerperium. The other divisions of the subject receive careful attention. The whole appearance of the work is very attractive, the illustrations, many of which are new, are particularly good and it has proved to be one of the most satisfactory works on this subject for the student and practitioner.

The Practical Medicine Series of Year Books Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the general editorial charge of Gustav P. Head, Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume IV, Gynecology, edited by Emilus C. Dudley, A. M., M. D., and William Healy, A. B., M. D. March, 1904. Chicago. The Year Book Publishers, 40 Dearborn Street.

This resume of the gynecologic literature of the past year will prove extremely useful to those whose time is too limited to read the various journals as they appear. Many of the articles are extensively quoted while brief abstracts are made of the less important contributions. The whole field of gynecology is well covered and there is a great variety in the numerous subjects discussed. A number of illustrations are introduced to illustrate various operative procedures. The work will undoubtedly prove as successful as its predecessor.

Diseases of the Intestines. A Text-Book for Practitioners and Students of Medicine, by Max Einhorn, M. D., Professor of Medicine at the New York Postgraduate Medical School and Hospital, and Visiting Physician at the German Hospital, New York. Second revised edition. New York. William Wood & Company, 1904. \$3.00 net.

Einhorn's work on gastrointestinal disorders is too well known to require an extended notice of this volume in its second edition. Not only has the author had a large personal experience in the treatment of the diseases of the stomach and intestinal tract, but he is thoroughly conversant with the literature of his subject, both American and foreign. In arrangement the present volume is similar to that of his work on Diseases of the Stomach. He takes up in order the anatomy and physiology of the intestines, methods of examination and treatment, and follows this by a consideration of the several diseases, beginning with those dependent upon local pathologic changes. To the subject of appendicitis he devotes a chapter of 25 pages, and gives an excellent summary of its history, etiology, and pathology. On account of the divergence of opinion as to the time

and circumstances governing the operative treatment of this condition, this section will presumably be less satisfactory to many than will most sections of the book. He gives full directions for the general care of the patient until such time as operative interference is attempted, and considers opium the remedy *par excellence*. He mentions cathartics only to condemn their use. He advises the entire abstinence from food or a strict limitation of diet, proportionate to the severity of the condition. He thinks rectal feeding contraindicated in severe cases and when perforation has taken place. He does not mention the treatment advocated by Ochsner and others. The book closes with a chapter on intestinal parasites. The volume of 397 pages would be an addition of great value to the library of any physician.

Grave's Disease, With and Without Exophthalmic Goiter, by Wm. H. Thompson, M. D., LL. D., New York. William Wood & Co., 1904.

In this book of 143 pages Dr Thompson has provided an extremely interesting and readable monograph on the subject of Grave's disease. It was written for the purpose of emphasizing the opinion of the writer that the disease is characterized by a clinical picture of great definiteness, but one in which goiter and exophthalmos are by no means uniformly present, and that it is necessary to look elsewhere than to the thyroid gland or its accessories for the etiology of the affection.

Aside from brief but adequate summaries of the pathology and surgical treatment of the affection the volume is based upon the author's personal experience with the disease, and the lessons presented are drawn directly from the case histories of 42 patients with goiter and exophthalmos, and 28 patients without goiter. In most instances the patient has been followed for several years after recovery, or to a fatal issue, and this most valuable characteristic results from the fact that the cases are not drawn from hospital experience but from those seen in private practice.

In an intoxication from deranged gastrointestinal function Dr Thompson finds what he considers the cause of Grave's disease and is greatly encouraged in this view by the extremely satisfactory character of the results of treatment in the form of regulation of the diet and the administration of intestinal antiseptics. The mode of treatment which has proved so useful in his hands is fully described in the book. The volume with its large type, wide margins, and agreeable spacing is a very handsome one. A few errors which have escaped the proof-reader may be found, but they are not such as to mislead the reader and will undoubtedly be corrected in subsequent editions.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes, by Richard C. Cabot, M. D. With colored plates and engravings. Fifth revised edition. New York. William Wood & Company, 1904. \$3.50 net.

The fifth edition of Cabot's well-known work shows many points of improvement over the previous issues. In the chapter on technic improved and simpler methods are suggested. Tallqvist's test-book for hemoglobin estimation is recommended as being quicker and simpler than the expensive and cumbersome Fleischl apparatus. Considerable attention is directed to the use of Wright's modification of Jenner's stain for the examination of blood films. A number of new colored plates are introduced to illustrate its use. The simplicity of its preparation and employment as compared

with Ehrlich's stain would alone recommend it, but in many respects it is superior to the triacid stain and anyone who has used it will share Cabot's enthusiasm for it. The whole book shows careful revision, the chapter on parasitic disease is well illustrated and shows the advances that are being made in this direction.

A Dictionary of Medical Science, Containing a Full Explanation of the Various Subjects and Terms of Anatomy, Physiology, etc. By Robley Dunglison, M. D., LL. D. Twenty-third edition. Thoroughly Revised, with the Pronunciation, Accentuation, and Derivation of the Terms. By Thomas L. Stedman, A. M., M. D. Lea Brothers & Company. Philadelphia and New York. 1903.

The twenty-third edition of this excellent work so well known for almost 25 years has undergone so thorough a revision that the present volume represents practically a new work. We know of no single volume which covers so completely the vast and rapidly increasing medical vocabulary within the same compass. All the newer words incident to the study of immunity, radiography, and the more recent protozoan biology have been incorporated in the text with in every instance a most satisfactory and clear interpretation of their meaning. Dr Stedman is to be congratulated for the success with which he has accomplished the revision of this well-known lexicon. The typographic arrangement, the unusually fine illustrations, both in half-tone and colored plates, and the system of cross references employed, make this a very valuable volume and one which no physician or student of medicine can afford to be without.

Electro-Static Modes of Application, Therapeutics and the Uses of the Roentgen-Ray. By William Benham Snow, M. D., Professor of Electro-Therapeutics and Radiotherapy in the New York School of Physical Therapeutics, Editor of The Journal of Advanced Therapeutics, and late Instructor in Electro-Therapeutics in the New York Post-Graduate School, etc. Second Edition, revised and enlarged. Contains more than One Hundred Illustrations, including Ten Full Page Half-Tones showing the various methods of posturing and treating conditions. Price, cloth bound, \$3.00. A. L. Chatterton & Co., 97-99 Reade Street, New York.

This volumes of 300 pages comprises a very complete manual upon the subject of electrostatic methods, their application and therapeutic uses, including also an extremely useful section devoted to skiagraphy including a valuable chapter on practical uses for the X-ray in surgical and clinical work; also a section devoted to principles of radiotherapy. The work, while in no sense an exhaustive one, should serve really as a practical guide and be of service in elucidating many of the questions which meet the practical worker in this field of therapeutics.

Tuley's Epitome of Pediatrics. A Manual for Students and Practitioners. By Henry Enos Tuley, A. B., M. D., Professor of Obstetrics in the Medical Department of Kentucky University, Louisville, Ky. In one 12mo volume of 266 pages, with 33 engravings. Cloth, \$1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1903.

While we have never been enthusiastic believers in the value of epitomes in any field of medicine, and have always rather questioned the usefulness of a work of this character, one is forced to admit on the face of the present series that all the good points of such an epitome have been emphasized while most of the objectionable ones have been omitted.

This little volume devoted to pediatrics really contains a surprising amount of information, well systematized and carefully arranged, and will undoubtedly prove of great value to students and others who desire to review the subject quickly. As such we are glad to recommend it, but, of course, it remains to be said that such works are in no way intended to replace more exhaustive manuals.

The International Text-Book of Surgery by American and British Authors. Edited by J. Collins Warren, M. D., LL. D., England, and A. Pearce Gould, M. S., F. R. C. S. Second Edition. Thoroughly Revised. In Two Volumes containing 977 Illustrations, including Full Page Plates in Color. Volume I: General and Operative Surgery, with 470 Illustrations. Philadelphia and London. W. B. Saunders & Company. 1902.

The first edition of this valuable work was immediately accorded enthusiastic reception and won at once the first place in the ranks of similar treatises upon the art and science of surgery. In almost no field of medical science has there been the same rapid strides as is patent in the domain of surgery. The worker of a few years ago is constantly surprised to note the newer methods and the newer operative procedures which are being constantly introduced. In the face of such unusual progress, a second edition of a work of this character becomes absolutely necessary, and in this last edition the whole text has been carefully revised and all the newer operative procedures as well as methods of diagnosis and their application have been included, making this work an extremely valuable one, and encompassed in the reasonable limits of two satisfactory volumes. The list of contributors is in itself a sufficient guarantee of the character of the subject matter, and the editors are to be congratulated in having secured the cooperation of such a distinguished list of contributors. The work is one which will appeal both to the surgeon and also to the physician who can turn to it as a work of reference in the study of obscure subjects. We are glad to endorse this work as the most satisfactory small edition devoted to surgery we know.

Musser's Diagnosis. A Practical Treatise on Medical Diagnosis. For the Use of Students and Physicians. By John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania, Philadelphia; President of the American Medical Association. New (fifth) edition, thoroughly revised and rewritten. In one octavo volume of 1205 pages, with 395 engravings and 63 full-page colored plates. Cloth, \$6.50, net; leather, \$7.50, net; half morocco, \$8.00, net. Lea Brothers & Co.

To those who have known the earlier editions of Dr Musser's Medical Diagnosis, this the last and fifth edition will appeal even more strongly, and anyone at all familiar with the work will be surprised to find that such extensive revision was possible and will be as delighted to learn that it has been most successfully carried out. In the earlier editions of Dr Musser's work there were often paragraphs and sentences which added confusion and were most difficult of intelligent interpretation except after careful re-reading. In this edition the text has very evidently been thoroughly gone over and everywhere throughout the work the statements are unusually clear and lucid. As the author has stated in his preface, any lapse in methods or laxity in application leads

to either partial or complete failure, and it can truly be said that no effort has been spared to make this work a thoroughly exhaustive one in the entire field of medical diagnosis. In view of the rapid strides which have been made in the past few years in methods of precision and exact diagnosis, the demand for a work of this character is really greater than ever before, and that all the newer methods necessary as an aid to diagnosis have been carefully and exhaustively explained is proof enough of the thoroughness and care with which this work has been brought up-to-date. Dr Musser is indeed to be congratulated for the success which has attained this publication in the past and for the larger measure of success which is promised it for the future. The typographic make-up including the illustrations, both those in half-tone and in colors, is all that could be desired, with the single exception, perhaps, of a few plates such as the rather crude colored lithograph of the protozoa of malaria at the bottom of plate 16. A very complete and satisfactory index concludes this excellent work of reference.

Obstetrics for Nurses. By Joseph B. De Lee, M. D., Professor of Obstetrics in the Northwestern University Medical School, Chicago; Lecturer in the Nurses' Training Schools of Mercy, Wesley, Provident, Cook County, and Chicago Lying-in Hospitals. 12mo of 460 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$2.50 net.

Although this work is intended primarily for nurses it would also be useful to the medical student as well, because the young physician has often to attend to all the details of a confinement himself, unaided by a nurse and without the conveniences of a maternity hospital in which his experience has probably been gained. The subject is most thoroughly considered. The pelvic anatomy and the physiology of labor are clearly and tersely described. The care of the mother, both before and after labor, the care of the infant and the complications to which both are liable, receive due consideration. The preparation for an aseptic confinement or for any of the obstetric operations that may have to be performed are carefully described, the instruments and supplies necessary being tabulated. No part of the subject seems to have been neglected. The work is profusely illustrated by a large number of original photographs which serve to explain the various procedures very thoroughly. The book deserves a very good reception and can be heartily recommended.

New Books in the Cleveland Medical Library

Purchased: Diseases of Intestines and Peritoneum, by H. Nothnagel, 1904; Surgery of Paralysis, by Tubby and Jones, 1904; System of Practical Surgery, by Bergmann and Bull, Vol. 2, 1904.

Donated by Mr P. W. Garfield: System of Practical Surgery, by Bergmann and Bull, Vol. 1, 1904. C. A. Hamann, M. D.: Index Medicus, 1904 (monthly numbers). Librarian's Exchange: 30 pamphlets by S. Weir Mitchell, M. D. Catalogue of Literary and Scientific Works of S. Weir Mitchell, M. D. Index Medicus, Index for Vol. V. Berliner Klinische Wochenschrift, 1881 to 1885. Addison Snively, M. D.: 76 vols. various medical works.

Medical News

W. J. Haine, of Warren, has removed to Akron.

Akron's beautiful new hospital has been dedicated.

Dr Mattern, of Columbus, will locate in Unionport.

William Snearer, of Cleveland, will locate in Madison.

E. F. Wakefield, of Carrollton, has removed to Cleveland.

W. C. Bateman has been appointed Health Officer of Zanesville.

Charles F. Hoover is spending a few weeks in Washington, D. C.

E. M. Foster, of Portsmouth, is soon to locate in Houston, Texas.

D. S. Gardner, of Massillon, was injured in a runaway recently.

D. T. Webb, of Portsmouth, will open a sanitarium in Cincinnati.

George W. Crile, of this city, has returned from his trip abroad.

J. G. Seiter, of Marion, sustained painful injuries in a bicycle accident.

Frank Tibbits, of Geneva, was gone early in June for about ten days.

J. H. Johnson, of Wauseon, will be absent in Chicago for a short time.

The Toledo Medical College has been tendered to the Toledo University.

Roger G. Perkins, of this city, is spending a few months in Europe.

William N. Snearer, of North Madison, will open an office in Madison.

E. N. Hawley, of Norwalk, spent a week at St. Louis attending the Fair.

D. W. Stroup, of Norwalk, left for Ypsilanti on June 11 for a week's vacation.

R. H. Birge, of this city, was in Boston during the second week in June.

The graduation exercises of the Miami Medical College were held on June 1.

John B. McGee, of this city, has returned from a few weeks' trip in the west.

Dr Smith, of Bucyrus, has taken temporary charge of Dr McLeod's practice.

J. H. Davis will change his location from Wilmington to Washington, C. H.

The Hardin County Medical Society has been admitted into the State Association.

The State examinations were held simultaneously in Cleveland, Columbus and Cincinnati.

D. K. White, of this city, has removed from the Century building to 260 Euclid avenue.

A. T. Quinn, of Wilmington, attended the meeting of the American Medical Association.

E. LeFever, member of the Legislature, from Morgan County, will locate in Marietta.

Dr Reade, of Youngstown, left during the latter part of May to attend a meeting in St. Louis.

John H. Musser proposes to place the bars for admittance into medical schools a little higher.

W. A. Holmes, of Hillsboro, visited the St. Louis Exposition during the first week in June.

George Seeley Smith, of this city, has removed from 260 Euclid avenue to 275 Prospect street.

J. W. Collins, of Toronto, Ohio, was thrown from his bicycle and sustained a fracture of the thigh.

The 75 nurses of the Cincinnati City Hospital have been given a new home in Hopkins street.

The Cleveland Medical Library will be closed at noon on Saturdays during the summer months.

The Clark and Green County Medical Societies held their annual outing at Neff Park on June 7.

Twenty-two nurses were graduated from Lakeside Hospital, Cleveland, at the commencement for 1904.

J. H. Schaeffer, of Cridersville, has returned from Chicago, where he was taking a postgraduate course.

It is rumored that Dr Bell will return from the southern part of the State and again practice in Canton.

J. S. Cross, of North Jackson, has bought out the Sigler sanitarium. He will immediately take charge.

T. J. Phillips sustained several severe contusions about the legs June 5 in a street car accident in Alliance.

Martin Stamm, of Fremont, returned from the meeting of the American Medical Association, on June 11.

C. W. Conley is the candidate for Congress for Butler and Montgomery Counties on the Democratic ticket.

George Mannhardt, a graduate from the College of Physicians and Surgeons of Cleveland, will locate in Galion.

Carroll Decourcy, a graduate of Ohio Medical College, will serve at St. Mary's Hospital, Cincinnati, as interne.

E. H. Trickle, of Cutler, has returned from Chicago where he went to attend the meeting of the railway surgeons.

W. G. Moorehead sailed from New York the first week in June for the British Isles, where he will spend the summer.

President E. W. Mitchell, of the State Pediatric Society, urges special training for the weak minded in the public schools.

Charles Graefe, of Sandusky, has returned from Atlantic City. He attended the meeting of the American Medical Association.

W. S. Witherspoon, a graduate of the Ohio Medical College, will soon be an interne at the National Jewish Hospital, in Denver, Colo.

F. D. Halleck, of Bowling Green, has returned from New York where he has been taking a postgraduate course at Bellevue Hospital.

H. L. Sanford has resigned his position as resident surgeon of Lakeside Hospital and has opened an office in the Osborn Building.

William E. Bruner, of this city, has returned from an eastern trip. While there he attended the meeting of the American Medical Association.

R. H. Wilson's new hospital, in Martin's Ferry, was opened to the public recently. During the day 1800 people were shown through the institution.

Dr McCabe, of Springfield, has accepted the position of Manager of Agencies of Ohio, for the Columbia Life Insurance Company, of Cincinnati.

Frank Caldwell, of Cincinnati, President of the Western and Southern Life Insurance Company, returned June 14 from a month's trip in the south.

There was a good attendance at the June meeting of the Sandusky County Medical Society. M. O. Phillips read a paper on "Pulse" which was freely discussed.

The Cleveland Alumni of the University of Pennsylvania are greatly interested in the dedication of the new \$700,000 laboratory in connection with the above university.

The fifth regular meeting of the Lake County Medical Society was held at Painesville June 6. J. W. Lowe, of Mentor, read a paper on "The First Principles of Electrical Science."

Any member of the profession can have his medical articles typewritten at moderate cost, and short notice, by applying to the Assistant Librarian during Library hours.

An ordinance has just been passed in Toledo giving to physicians in their carriages and to ambulances, right of way over all other vehicles. Violation of this law to be fined not higher than \$25.

The third annual meeting of the C. H. & D. R. R. surgeons was held at Dayton during the latter part of May. Warren Stone Bickham, of New York, delivered an address on "Operative Treatment of Fractures."

"If the people of Akron get typhoid fever, let them hire physicians," said G. W. Smith, Secretary of Akron's water-

works, when he was appealed to to take some steps that would insure the city a purer water supply.

The Lorain County Medical Society met in regular session on June 13. H. A. Becker, of Cleveland, read a paper on "Surgery of the Gall-Bladder;" A. N. Garver, of Lorain, read a paper on "Double Amputation, Following Injuries."

The Hancock Medical Society met at Findlay on June 2. Dr Drake read a paper on "Medical Inspection of the Schools." A resolution was passed asking the City Council to prohibit the promiscuous distribution of samples of patent medicines.

The Medical Societies of Green and Fayette Counties held a meeting and afterwards attended a banquet at Jamestown, on June 2. D. N. Kinsman, of Columbus, was the speaker of the evening with "Summer Diseases of Children" as his theme.

W. J. Means, of Columbus, at a meeting of the Association of American Medical Colleges, was appointed a member of the committee to consider the matter of uniformity of curricula in colleges and to study the question of a common standard for college entrance requirements.

The Crawford County Medical Society met at Bucyrus on May 31, Dr J. A. Duncan gave a report of the meeting of the California State Medical Association. Reports were also given of the Ohio State meeting at Cleveland. A paper on "The Requisites of a County Medical Society" was presented by J. F. Fitzsimmons and one on "Heredity" by J. H. Kochendorfer, of Galion.

The following hospital appointments have been made from the graduating class of the W. R. U. Medical College:

Lakeside Hospital: Drs Brett, Hoskins, Lenhart, Burroughs, King, Diemer, McClure and Staral. Charity Hospital: Drs Tyner, Schlesinger, O'Conner, Tarr and Grills. St. Alexis Hospital: Drs Goodman and Wells. City Hospital: Dr Noblitz; resident pathologist, Dr Donaldson. St. John's Hospital: Drs Yoder and Spicer. Fresh Air Camp: Drs Hammond and Connell. Drs Yong and Manley have received appointments from the Youngstown City Hospital, and Dr Pankhurst from the Erie, Pa., Hospital.

Deaths

G. S. Smith, aged 79 years, died at Groveport.

C. H. Kinnaman, of Cleveland, died after an illness of only three days.

A. H. Tyler, one of Napoleon's oldest and most prominent citizens, died May 23.

Frank Savory Pearce, of Philadelphia, son of Enoch Pearce, of Steubenville, died recently.

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No 8

Acute Hemorrhagic Pancreatitis, with Report of a Case

BY J. H. J. UPHAM, M. D., and ISABEL A. BRADLEY, M. D., COLUMBUS

The year 1889 began a new epoch in our knowledge of the pancreas, not only as to the functional value of that organ in the normal animal economy, but also and more especially as to its important position in modern pathology. In that year the work of von Mehring and Minkowski, published more completely a few years later on the results of the extirpation of the pancreas, and particularly the address of Dr Reginald Fitz before the New York Pathological Society, in February (the Middleton-Goldsmith Lecture), excited a wide-spread interest, and directed attention to this hitherto neglected gland, leading to investigations and observations which have been exceedingly fruitful in important results.

Since the ancient hypothesis that the pancreas was merely a cushion for the support of the stomach and duodenum down to modern times various theories have been advanced as to its *raison d'être*, and as to any diseases thereof most authorities, until very recently, practically ignored the subject, acknowledging the lack of knowledge and stating that the extreme rarity of such, if they did not occur, rendered them of no clinical importance. The possibility of its being the seat of cancer was indeed known, but was considered a pathologic curiosity to be recognized at autopsy. Clässen appears to be one of the earliest to suggest other morbid conditions; Fitz quotes him as far back as 1842 as endeavoring to demonstrate acute hemorrhagic inflammation of the pancreas as a distinct disease by the report and analysis of six cases. His conclusions, however, seem to have excited but little attention, for neither then nor for long afterward is there

evidence that his deductions were at all accepted or any general interest aroused.

In the published lectures of Elliotson in 1844, of Dr John Bell in 1845, and of Dr Thomas Watson in 1846, all of London, the subject of the pancreas is summarily disposed of as being practically *terra incognita*. In this country Dr Geo. B. Wood, in 1858, stated that there was practically nothing known on the subject; he admitted the possibility of cancer and of a chronic cirrhosis of the organ to be occasionally recognized at autopsy. Austin Flint in 1866 and 1873 dismissed the subject briefly as of little importance owing to the infrequency of lesions of the gland and the obscurity of their diagnosis. Dr J. R. Wardell, of London, in 1871, in Reynolds System of Medicine, quotes Clässen and others in an excellent article, showing that some advances were being made, but emphasizes the extreme rarity of pancreatic disease. Virchow himself in 1884 stated that nothing was rarer than pancreatic hemorrhage and Fitz in his critical review of the literature was able to collect but 70 cases of acute pancreatitis.

Nine years after the last named, however, Warthin wrote that he was able to find 103 cases reported since that time alone, and I have been able from recent literature to add 60 more to these, and doubtless there are still many others. An analysis of these reported cases shows the rather interesting fact that but 13 in all are tabulated as occurring before the year 1870; 13 more are to be found between the years 1870 and 1880; 44 between 1880 and 1889, while over 160 have been reported since that last date, showing that greater interest in the subject and more systematic necropsies demonstrate that while acute disease of the pancreas must still be considered uncommon, the fact remains that it does occur much less infrequently than was formerly supposed, and therefore considering the profound disturbance to which it may give rise, and the possibility in a few cases of affording surgical relief, it would seem that this organ is entitled to greater consideration and interest on the part of the profession in general. Pathologists have led the way and it now remains for clinicians and surgeons to test and verify their work. When one considers the treatise by Opie and the exhaustive lectures (the Hunterian, 1904) by Mayo Robson, one may appreciate the great progress that has been made in little over a decade. Of the several now quite well-established diseases of the gland, I will consider the one which with the exception of malignancy was probably the first to be described, but which still remains

somewhat of a mystery, I refer to acute hemorrhagic pancreatitis, or, according to Mayo Robson, acute hemorrhagic parenchymatous pancreatitis.

Pancreatic disease so forcefully described by Fitz was divided by him into three classes, and this arrangement has remained practically unchanged as all cases seem to fall naturally into three groups according to the gross character of the pathologic findings: (1) hemorrhagic, (2) suppurative, and (3) gangrenous pancreatitis. Of these the suppurative and gangrenous or necrotic forms may be considered as secondary to the hemorrhagic, and therefore the study of the etiology of all three groups resolves itself chiefly into the investigation of the causes of the first, and though much has been accomplished in this direction the question cannot be said to be positively settled as yet.

Fitz's conclusions were briefly: "Acute pancreatitis commonly originates by the extension of a gastroduodenal inflammation along the pancreatic duct. It may also be induced by the occurrence of hemorrhage, which in turn may be of traumatic origin, although usually arising from unknown causes. The pancreatic hemorrhage may likewise be secondary to inflammation of the pancreas." These views prevailed for nearly 10 years, supported by the finding in a number of cases of various bacteria in such inflammatory conditions which could readily have come from the intestinal tract. Opie quotes Körte and Osler as mentioning in 1898 the frequent association of gall-stones in cases of acute pancreatitis, and Lancereux one year later as suggesting that a calculus in the diverticulum of Vater might favor such ascent of microorganisms.

A great many cases, however, have responded negatively to bacteriologic investigation and in such other explanation than infection must be sought. According to Opie again, Hlava in 1890 and Thirioloix in 1892 were able to produce experimentally more or less of a hemorrhagic pancreatitis by the injection into the duct of Wirsung of irritating solutions; the former being more successful with the use of an artificial gastric juice, offered the theory that in individuals with excessively acid gastric secretion some of the hyperacid material might be forced by antiperistalsis into the pancreatic duct and there bring about the inflammatory reaction. Flexner carried out these experiments more at length in 1900, using numerous irritating substances as weak solutions of hydrochloric acid, nitric acid, chromic acid, sodium hydrate, formalin, suspensions of bacteria, etc., and succeeded in producing hemorrhagic pancreatitis in many cases,

associated with typical fat necrosis in some of them. The strength and amounts of the solutions employed by Flexner in his successful experiments would seem to make Hlava's theory very unlikely, and no actual conditions have been found in human subjects in its support.

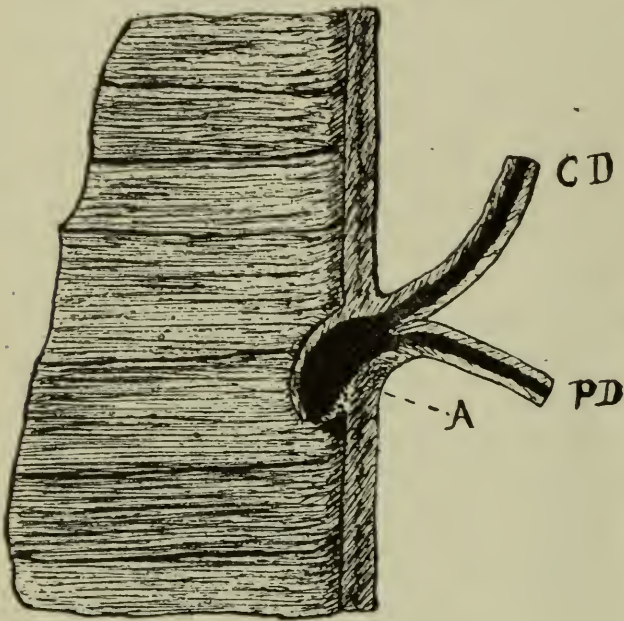
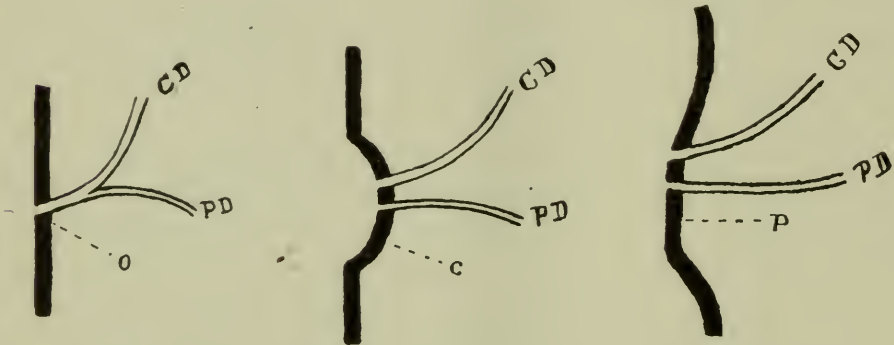


Diagram to show Ampulla of Vater with ordinary termination of common bile-duct (CD) and the pancreatic duct (PD). (Robson)



Diagram showing large diverticulum of Vater containing a small calculus so placed as to divert flow of bile into the pancreatic duct. (Opie)



Three other methods by which the common bile-duct and Wirsung's duct enter the duodenum. CD—Common bile-duct. PD—Pancreatic duct. O—Common orifice. C—Cup-shape depression in wall of duodenum. P—Papilla. (Robson)

The experimental work of Opie seems to offer much in the way of a solution of the etiology of a certain number of cases at least. This observer having witnessed a case of hemorrhagic pancreatitis in which a biliary calculus was found lodged "in the common duct near its termination," and noticed the numerous occasions where in reports of cases the section protokol mentioned the association of cholelithiasis, viewed the coinci-

dence from another standpoint than his predecessors; he rejected the suggestion of Lancereux and, having in mind the experiments of Flexner, he conceived the idea that bile diverted into the duct of Wirsung by a stone lodged in the diverticulum of Vater might act similarly as a source of irritation. By painstaking experimental work with animals he seems to have proved the possibility of such activity of the biliary secretions, and in applying his theory to the human subject, has very ingeniously suggested explanations of various objections raised. He states that a large calculus lodged in the ampulla might completely fill it thus practically occluding the opening of Wirsung's duct; also, in a certain percentage of cases, 11 in a series of 100 examined by Opie, there may be separate openings into the duodenum of the bile and pancreatic ducts, both conditions manifestly unfavorable. In the remaining percentage of subjects the anatomic arrangements may be quite varied as to minute details, more particularly as to the opening in the papilla and the length of the diverticulum. For the ideal conditions of Opie's theory the two ducts must coalesce to form the diverticulum, and the length of the latter, the size of the stone, and of the opening into the intestine must be in just the right proportions for an impacted calculus to convert the common duct, the diverticulum and the pancreatic duct into practically a continuous canal, necessarily a very unusual combination of circumstances; but acute pancreatitis is so equally uncommon as to make the rarity of the preceding really supporting to the theory.

It is certainly true that several cases of the condition have been reported with small calculi in the diverticulum of Vater, and many others described as associated with cholelithiasis in which it is impossible to deny that a small stone so lodged may not have been overlooked or escaped into the intestine after having caused the trouble, or lost from one cause or another. The case which we have to report today had a gall-stone in the common duct; whether it may have slipped upward or whether there may or may not have been another temporarily in the ampulla we cannot say, but as you will hear more at length later, the absence of bile stains in the duct of Wirsung, with the presence of bacteria, together with the character of associated lesions, lead us to believe that infection was the chief etiologic factor in this instance.

We well know that cholelithiasis is commonly associated with, if not usually the result of the presence of bacteria in the gall-bladder; experimentally acute pancreatitis has been pro-

duced by the injection into the pancreatic duct of suspensions of bacteria or their toxins, therefore it would seem highly probable that cholelithiasis acts in many instances as a predisposing cause independently of the manner suggested by Opie, and in some cases may also supply the exciting cause in the way of pathogenic microorganisms as well.

The etiology, I repeat, cannot be regarded as completely cleared up. Cholelithiasis is frequently, though not constantly associated with acute hemorrhagic pancreatitis; an impacted gall-stone in the diverticulum of Vater may and probably does act in some cases as claimed by Opie; infection doubtless fully accounts for others, with or without cholelithiasis, in the latter instances the duodenal catarrh, so evidently present from the clinical histories of a great many cases, may readily provide the source of the bacteria. Traumatism also would seem to be active largely in the production of a few cases according to some reported instances.

Other etiologic factors are alcoholism, syphilis, arteriosclerosis and chronic gastric catarrh; males are the more frequently affected in spite of the fact that women are so much more commonly the victims of cholelithiasis.

Symptoms: The symptoms of acute hemorrhagic pancreatitis may be almost typically illustrated by the case we have to report:

The patient, W. S. A., male, aged 50 years, was an inmate of the Columbus State Hospital for the Insane, and it is to the courtesy of the superintendent of the same, Dr Stockton, that I am indebted for the opportunity of working up and reporting the clinical facts of the case. The man was admitted to the Hospital in March, 1894, suffering from chronic mania, and hence by reason of his mental condition his history is not as complete as we could wish.

He was of foreign birth, so his antecedent family history is entirely unknown; he was an unskilled laborer of irregular habits and exposed to the usual privations and vicissitudes of that class. He was a confirmed alcoholic.

Several times during his stay in the Hospital the patient had typical attacks of biliary colic, and for some time preceding his last illness he had a severe subacute gastroenteritis. Early on the morning of December 12, 1902, he was seized with severe colicky pains in the abdomen which appeared to the attending physician to be of the same character as those previously diagnosed as from an impacted gall-stone, but of rather more severity. A hypodermic injection of morphin was administered with but little relief, and a second was given in an hour or so. He still continued to be very restless, the pain apparently

becoming constant, and he vomited repeatedly; the vomitus presented nothing unusual. The persistence of the symptoms and their change in character indicated that this illness differed from his former attacks, and an acute intestinal obstruction was suspected. I was called in to see the patient about six hours after the onset. The man then was distinctly in a state of collapse; his pulse, hardly palpable at the wrist, approximated 140; his extremities were cold, his face cold and clammy, and his expression was anxious; he was restless and talkative, and complained constantly; decubitus dorsal, with right thigh flexed on abdomen; the abdomen was not especially distended but markedly tender over epigastrium.

His raving led me to suspect traumatism somewhat, but there were no marks of injury and no history of such could be obtained. I disagreed with the diagnosis suggested owing to the suddenness and severity of the onset, but never having seen a case of hemorrhagic pancreatitis I failed to recognize the true condition. I inclined to the belief that the man had fallen or otherwise injured himself, causing severe obscure internal injuries, and therefore advised the usual stimulant treatment in order to allow of an exploratory operation if he should react. I had, however, no hope of the latter and was not surprised to hear of his death about 10 hours later.

The autopsy was performed 10 hours after death, at which time the following notes were made: The body is that of a large, muscular, well-nourished man. The subcutaneous fat is large in amount. Rigor mortis is present throughout, and albor mortis in the extremities only. The abdomen is markedly distended and tympanitic. There is a hydrocele on the right side. Old scars surrounded by large copper colored areas are on the extensor surfaces of both legs. Thick, greenish, sour-smelling fluid is coming from nose and mouth.

The brain weighs 1340 grams, the scalp bleeds freely, is thick and adherent. The calvarium is thin and firmly adherent to the thickened dura. The pia-arachnoid is thickened but not adherent to the convolutions. The blood-vessels are thickened and tortuous with wide lumina.

There is about 20 cc. of dark reddish fluid in the pericardial sac. The epicardial fat is edematous and increased in amount. In the left pleural cavity is about 500 cc. and in the right 120 cc. of fluid, similar in appearance to that in the pericardial sac.

On opening the peritoneal cavity quite a large amount of rather offensive smelling gas escapes. The abdominal cavity contains about two liters of reddish-brown fluid. There are no blood

clots or shreds of fibrin. The intestines are distended, the walls thickened and of a purplish-red color. The mesenteric, epiploic and omental fat is markedly thickened and edematous, and thickly studded on its surface and through its substance with opaque yellowish areas. These areas range in size from two to five mm. in diameter, and by coalescing large areas are formed which are from two to three cm. in diameter. On section they are soft and crumbly. Numerous dark, hemorrhagic areas are scattered through the fat. The blood-vessels are distended with dark red blood. Easily removed adhesions surround the cecum. The appendix appears normal. The root of the mesentery, omentum, transverse colon, duodenum, spleen and pancreas forms an edematous adherent mass occupying the upper part of the abdomen. The adhesions are easily separated.

The pancreas is about three times its normal size, and is of a dark purplish-red color. Around the outer portion of the head and through the parenchyma are a few areas of a light grayish color where the pancreatic lobules can be distinguished. There are numerous opaque grayish yellow areas in the edematous interlobular tissue. The pancreatic duct is not dilated nor bile stained. The splenic vein contains a large mixed clot of blood which extends nearly throughout its length.

The gall-bladder is small. It contains 135 faceted calculi and about 15 cc. of thick yellowish bile. The calculi range in size from two to six mm. in diameter. At the junction of the cystic with the hepatic duct is lodged a stone four mm. in diameter, which only partially occludes the lumen. The common bile-duct passes through the upper part of the head of the pancreas. The common, cystic and hepatic ducts are not distended.

The walls of the intestines throughout are thickened, the blood-vessels distended with blood and the mucosa markedly congested. In the cecum the mucosa is eroded in large areas. The intestines both large and small contain thin bile-stained feces. The stomach contained about 30 cc. of thick greenish, sour-smelling fluid. Its mucosa is thickened and intensely congested.

The liver weighs 1500 grams and through Glisson's capsule can be seen dark sharply defined areas. The areas are fairly numerous through the parenchyma and appear to be in relation with the branches of the portal vein whose lumina in places are occluded with blood clots. These are probably emboli from the thrombus in the splenic vein. The spleen weighs 100 grams, the consistence is very soft, the follicles not distinguishable in the congested and swollen pulp.

The left kidney weighs 150 grams, the right 170 grams. The fatty capsule is increased in amount, very edematous and thickly studded with yellow opaque areas and dark hemorrhagic areas. The fibrous capsule is easily removed, leaving a smooth surface. The cortex is of normal width. The cut surface is a bright pinkish color with yellowish areas through cortex and Bertini's columns. The pelvic fat is increased in amount and edematous. Both kidneys are alike.

There is a general condition of arteriosclerosis. The aorta is markedly atheromatous with areas of calcification. The areas of fat necrosis are limited to the abdominal fat.

Anatomic Diagnosis: Acute hemorrhagic pancreatitis, peritonitis, cholelithiasis, disseminated abdominal fat necrosis, gastroenteritis, arteriosclerosis, hepatic emboli, thrombosis of splenic vein, congested kidneys and spleen, chronic pachymeningitis and leptomeningitis.

Microscopic Examination: Pancreas. The parenchymatous and interstitial tissue is very necrotic in the majority of the sections examined. The nuclei do not stain, and the structure is very poorly defined. Areas of small round cells can be seen near the blood-vessels and through the interlobular connective tissue, which is markedly edematous.

A section from the head of the pancreas, passing through the common bile duct and the duct of Wirsung just before they emerge from the pancreas, shows large hemorrhagic areas with the red blood-corpuscles well preserved in the connective tissue around the ducts and between the lobules. The pancreatic cells in the section are in a state of necrobiosis and those surrounding the bile duct are in a more advanced stage than those surrounding Wirsung's duct. The inner surface of the common bile duct is bile stained, but the duct of Wirsung shows no pigmentation. A yellowish-brown granular pigment, which does not give the Prussian blue reaction for iron and is not soluble in chloroform, is quite abundant in the hemorrhagic areas, and is limited to these areas except in the necrotic portions where it is general throughout the tissue. This pigment is not in the cells. It is probably hemosiderin which has lost its reducing properties. There are small areas in which the pancreatic cells are almost normal and the areas of Langerhans appear quite normal. There is no pigment in these areas. The amount of pigment is in direct proportion to the amount of necrosis and hemorrhage.

In the sections of fat large areas are seen taking diffuse blue with hematoxylin stain. There are no nuclei seen nor can the

outline of the cells be distinguished. These are areas of fat necrosis. In the pancreas the areas of fat necrosis are a dark yellowish-brown with a border of brown needle-shaped crystals. Through the fat areas of small round cells are quite numerous and the blood-vessels are distended with red blood-globules. There is an extensive small round cell infiltration throughout the mucosa of the intestines with necrosis of its outer surface.

The liver shows a moderate amount of fatty infiltration with faintly stained nuclei in the parenchymatous cells. There is a desquamation of the endothelial lining of some of the branches of the portal vein which with red blood-cells and polynuclear leukocytes occlude the lumina of these vessels. In the embolic areas in the liver the liver cells are necrotic and there is a large amount of dark brown granular pigment free in the tissue; this does not give the Prussian blue reaction. The blood-vessels also contain this pigment. There are many poorly-defined red blood-globules in these areas. The Malphigian follicles of the spleen show quite extensive amyloid and hyaline degeneration.

Throughout the body the blood-vessels are distended with blood, and small hemorrhages into the tissues are numerous. Gram's stain reveals many staphylococci and a few streptococci in the pancreas, staphylococci in the intestines, liver, mesenteric fat and thrombus of the splenic vein. No germs are found in the lungs, heart, spleen, or kidneys.

It is possible that a calculus had been present in the diverticulum of Vater and had lodged there in such a way as to cause the bile to pass into the duct of Wirsung and was later ejected into the intestines and lost. If so the bile by its presence may have caused, as Opie has clearly demonstrated that it can, an acute hemorrhagic pancreatitis. We are, however, inclined toward the belief that this is a case in which an infection extended from the intestines. We base this belief on the following findings;—a severe gastroenteritis, the absence of even a moderately distended gall-bladder and ducts, the absence of any appearance of bile in the duct of Wirsung and its branches, and the presence of cocci in the intestines, pancreas, and liver. The same conditions which cause a chronic appendicitis to suddenly light up with terrific force and rapidly fatal results may exist in such a case as this.

The very widely distributed and extensive fat necrosis, the edematous condition of not only the abdominal fat, but also the epicardial fat, the engorged blood-vessels throughout the body, the effusion of a sanguinous fluid in the pleural, pericardial and

peritoneal cavities indicate the presence of an agent which is acting throughout the body. That this agent acts upon the walls of the blood-vessels, affecting their permeability, is very probable, although microscopically no changes in the walls could be distinguished as in Warthin's case.

The streptococcus and staphylococcus infection associated with the pancreatic secretion may produce an especially virulent and destructive agent.

Diagnosis: The recognition of acute hemorrhagic pancreatitis is difficult largely because, having been impressed with the idea of its extreme rarity, one is not on the lookout for it. In a suspected case the history of alcoholism, syphilis, arteriosclerosis, gastroenteritis, cholelithiasis, or traumatism may usually be obtained. The suddenness and severity of the onset, the location of the pain and tenderness, the presence of a rather ill-defined deep-seated tumor in the epigastric region, often persistent vomiting, and the marked state of collapse, out of proportion to any demonstrable lesion, present a symptom complex that once seen may hardly be forgotten or mistaken for anything else.

If death does not occur in the first 24 hours or so, peritonitis may promptly ensue, or in the course of days or weeks the signs of local suppuration or gangrene may appear.

Probably acute pancreatitis is most commonly mistaken for acute intestinal obstruction from one cause or another; the history of the case, however, with the suddenness of the onset and early development of shock, together with the fact that the constipation though present in both is not absolute in the pancreatitis, nor is the vomiting stercoraceous, should make a distinct differentiation if the case is seen sufficiently early. Later without an unusually clear history, after peritonitis has manifested itself, the diagnosis cannot be made with any certainty. In these obscure cases and in the secondary conditions of suppuration or gangrene the urine test of Cammidge may prove of considerable assistance; this test has already received the support of Mayo Robson, but further observation and verification are needed before its full value may be stated.

Treatment: The first treatment indicated if the patient is seen early is self-evident, *i. e.*, to bring about reaction if possible. Occasionally pigmented areas have been found in the pancreas at autopsy in subjects dead from other diseases, which would seem to indicate the sites of former hemorrhages with possibly some localized pancreatitis and spontaneous recovery, although the positive significance of these findings cannot as yet be stated

with certainty. Ordinarily there is unfortunately but little hope for the victim of a general acute pancreatitis, and as far as the primary state is concerned Cayley summed up the matter in 1896 when he said that the greatest practical importance in making a diagnosis of the condition lies in the consequent recognition that nothing further may be done for the patient, and hence the latter be saved from useless operation. If he survives the shock, however, the peritonitis, local abscess, or gangrene which almost certainly ensue require active surgical treatment *pro re nata*. In the necrotic condition, the case of Chiari, in which a portion of a gangrenous pancreas sloughed into the intestine, cannot be cited as an argument for palliative treatment. Thayer reports the first case diagnosed as the above and successfully operated upon, and there have since been many others of a similar nature, among them one, a member of our profession, recently presented by the operator, Dr J. F. Baldwin, before the Columbus Academy of Medicine.

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The Seasonal Distribution of Typhoid Fever

BASED UPON THE DEATH-REPORTS OF CLEVELAND SINCE 1892

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It will readily be conceded that considerable differences in the incidence and mortality of typhoid fever presumably result from accidental variations in the amount of whatever infectious material causes the disease, and that the comparison of the number of deaths from this disease in a given month with those of the month preceding or even of those of the same months of the year before gives, on this account, little information of value. Beginning with January, 1892, the Health Office has preserved its monthly death reports, and the writer has compiled the monthly number of typhoid deaths from that date to the present

time. The results of the compilation are presented in this article not primarily for the purpose of drawing elaborate conclusions from them, but to enable those who may desire to do so to compare the future typhoid mortality in Cleveland with that of the past. It seemed well to present the material now since on February 10, 1904, water was pumped for the first time from the new intake to the city mains, and since April 7, 1904, the entire city supply has come from that source. With this, a presumably better water than we had been receiving, the health of the city, especially as regards the incidence and mortality from typhoid fever, should be improved, and it is desirable that the extent of this improvement shall be determined as promptly as possible. It is hoped that the tables here given will aid in this matter.

On account of increasing population a statement of the actual number of deaths is misleading and a determination of mortalities is desirable. This requires an estimate of the population. Various methods are used in estimating population in inter- and postcensus years. The method most in vogue of estimating the inter-census population of cities, which have like Cleveland a decennial census only, is to add one-tenth of the difference between the populations in question to the earlier of these, as for instance to determine the estimated population of Cleveland in 1891, 1892, etc., add to the population in 1890 one-tenth, two-tenths, etc., of the difference between the population in 1890 and 1900. To secure a satisfactory approximation to the population at any time after the last census is a much more difficult matter, and the farther removed the date of the census the more considerable the error is likely to be.

When by the lapse of time a postcensus year becomes an inter-census year, estimates of the population, particularly when based upon expectation alone, are often shown to have been woefully and ridiculously out of the way. Such errors are almost uniformly on the side of a too sanguine estimate of the future, which for public health purposes is more serious than an underestimate would be. The method of estimating postcensus population used in this paper, which may or may not be original with the writer, is to fix upon a probable population at the next census period on the basis of the study of the previous growth of the city and then to proceed as in intercensus estimates. Beginning with the census of 1830 the decennial rates of increase in the population of Cleveland have been the following percentages: 463, 182, 152, 116, 72.4, 63, 46. After plotting these rates and studying them rather carefully it seemed unlikely that the increase of

the population of 1910 over that of 1900 would be less than 35% or more than 41.5% (an estimated population of 515,000 to 540,000). An increase of 36.5% was finally accepted, and this corresponds to an estimated population of 521,268 for the year 1910. The individual estimates including the census years 1890 to 1900 follow. The estimate of Cleveland's population for 1904 given out by the United States Census Bureau is 425,000. This, in Cleveland, is generally considered too low an estimate. My estimate for this year, made without reference to any other, is 437,568.

TABLE I

1890	261,353	1900	381,768
1891	273,395	1901	395,718
1892	285,437	1902	409,668
1893	297,479	1903	423,618
1894	309,521	1904	437,568
1895	321,563	1905	451,518
1896	333,605	1906	465,468
1897	345,647	1907	479,418
1898	357,689	1908	493,368
1899	369,731	1909	507,318

Table II gives the number of deaths from typhoid fever and the mortality of the same by month in Cleveland from 1892 to the present time. An important column of the table is that giving the average mortalities by month and the average number of cases for eleven years. On account of the typhoid epidemic in 1903 that year was excluded in making the averages. The column following this shows the variation in the mortalities of individual months. For example, the average mortality from typhoid fever in Cleveland for the month of January was 2.2 per 100,000; the difference between this average and the January mortality of each year, disregarding the sign of this difference, was secured, their sum and average determined, and we are able to say that the January mortality in Cleveland during the time under consideration was 2.2 ± 0.8 , or that while 2.2 is the average mortality for January in Cleveland, any mortality between 1.4 and 3.0 per 100,000 is within the average variation for that month. The succeeding columns contain the mortalities by month for 1903 and for 1904 to date. The last column is derived from the report of the twelfth census and contains the mortality from typhoid fever by month in the registration area of the United States.

TABLE II TYPHOID MORTALITY BY MONTH

Year.	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	Ave.	Ave. Var.	1903	1904	U. S. Regist. Area
January	{ Deaths. Mortality.	{ 3 1.0	{ 9 2.9	{ 7 2.2	{ 5 1.5	{ 5 1.5	{ 6 1.7	{ 11 3.0	{ 7 1.8	{ 15 3.8	{ 14 3.4	7.7	0.8	{ 32 7.6	{ 12 2.7	2.1
February.	{ Deaths. Mortality.	{ 1 0.4	{ 9 2.3	{ 7 3.1	{ 10 3.0	{ 2 0.6	{ 8 2.2	{ 8 2.2	{ 14 3.7	{ 17 4.3	{ 12 2.9	8.9	0.9	{ 23 5.4	{ 45 5.7	1.6
March.	{ Deaths. Mortality.	{ 10 3.5	{ 14 4.7	{ 8 2.6	{ 19 5.7	{ 7 2.0	{ 3 0.8	{ 15 4.1	{ 29 7.6	{ 10 2.5	{ 12 2.9	12.5	1.4	{ 55 13.0	{ 50 11.4	1.7
April.	{ Deaths. Mortality.	{ 2 0.7	{ 14 4.7	{ 4 1.3	{ 15 4.5	{ 9 2.6	{ 5 1.4	{ 10 2.7	{ 33 8.6	{ 14 3.5	{ 6 1.5	11.1	1.6	{ 66 15.6	{ 29 6.6	1.3
May.	{ Deaths. Mortality.	{ 11 3.9	{ 17 5.7	{ 1 0.3	{ 11 3.4	{ 6 1.7	{ 10 2.8	{ 11 3.0	{ 22 5.8	{ 11 2.8	{ 16 3.9	11.8	1.2	{ 51 12.0	{ 31 7.1	1.4
June.	{ Deaths. Mortality.	{ 20 7.0	{ 15 5.1	{ 4 1.3	{ 11 3.0	{ 3 0.9	{ 11 3.1	{ 10 2.7	{ 10 2.6	{ 13 3.3	{ 13 3.2	10.9	1.1	{ 39 9.2	{ 10 2.3	1.1
July.	{ Deaths. Mortality.	{ 31 10.9	{ 8 2.7	{ 7 2.3	{ 13 3.9	{ 7 2.0	{ 6 1.7	{ 7 1.9	{ 12 3.1	{ 15 3.8	{ 12 2.9	11.2	1.6	{ 54 12.7		1.6
August.	{ Deaths. Mortality.	{ 23 8.1	{ 23 7.8	{ 14 4.5	{ 15 4.5	{ 12 3.5	{ 16 1.7	{ 10 2.7	{ 27 7.1	{ 17 4.3	{ 9 2.2	15.0	1.8	{ 42 9.9		2.5
September.	{ Deaths. Mortality.	{ 23 8.0	{ 15 5.1	{ 4 1.3	{ 16 4.8	{ 4 1.2	{ 4 3.9	{ 9 2.4	{ 15 3.9	{ 7 1.8	{ 11 2.7	12.3	1.6	{ 40 9.4		3.3
October.	{ Deaths. Mortality.	{ 20 7.0	{ 14 4.7	{ 12 3.9	{ 6 1.8	{ 10 2.9	{ 21 5.9	{ 12 3.3	{ 14 3.7	{ 9 2.3	{ 8 2.0	13.0	1.3	{ 22 5.2		3.7
November.	{ Deaths. Mortality.	{ 14 4.9	{ 11 3.7	{ 12 3.9	{ 11 3.3	{ 9 2.6	{ 9 2.5	{ 10 2.7	{ 8 2.1	{ 3 0.8	{ 12 2.9	9.5	0.8	{ 20 4.7		2.8
December.	{ Deaths. Mortality.	{ 8 2.8	{ 10 3.4	{ 7 2.3	{ 9 2.7	{ 5 1.5	{ 22 6.2	{ 6 1.6	{ 14 3.7	{ 9 2.3	{ 8 2.0	9.3	0.9	{ 28 6.6		2.3
Total.	{ Deaths. Mortality.	{ 166 58.3	{ 153 51.5	{ 89 28.8	{ 117 36.3	{ 143 42.5	{ 79 22.8	{ 121 33.8	{ 119 32.3	{ 205 53.7	{ 133 32.5	133.2		{ 472 111.0		25.4

The facts which are shown in detail in the tables are in part presented in graphic form in the diagrams. Although we shall speak of these as showing mortalities the fact that relations between mortalities rather than the mortalities themselves are to be found in the diagrams will be noted on inspection. The first shows the Cleveland mortality from typhoid fever by month for eleven years. The smallest mortalities are to be found in the months

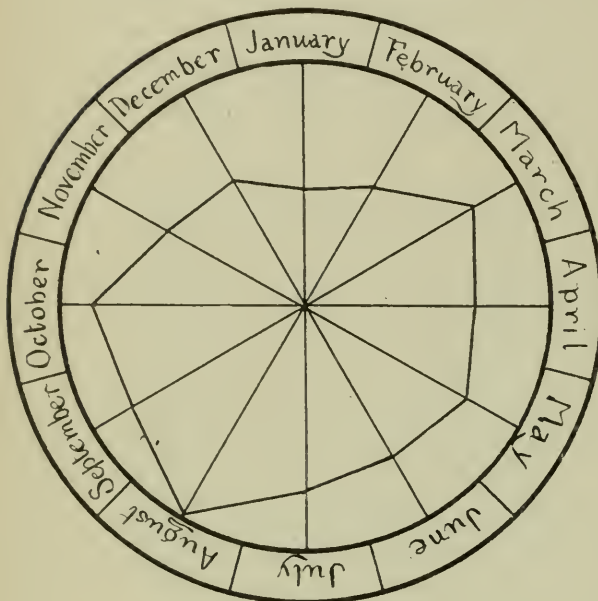


DIAGRAM 1.

Average monthly mortality from Typhoid Fever in Cleveland for the years 1892-1902.

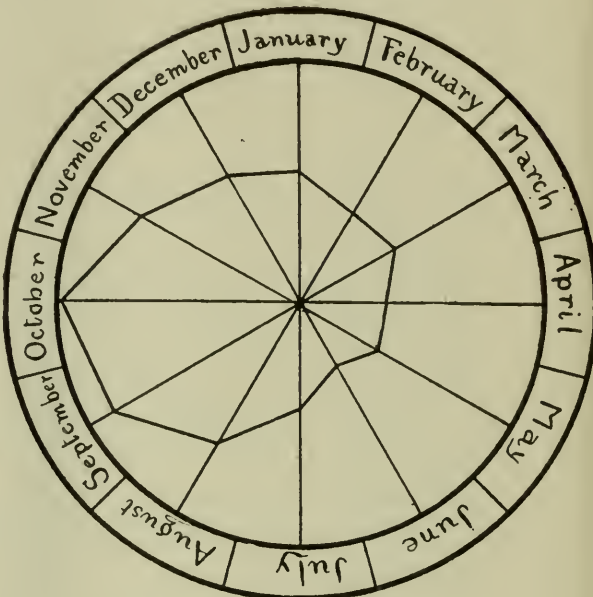


DIAGRAM 2.

Average monthly mortality from Typhoid Fever in Registration Area of the United States for the census year 1900.

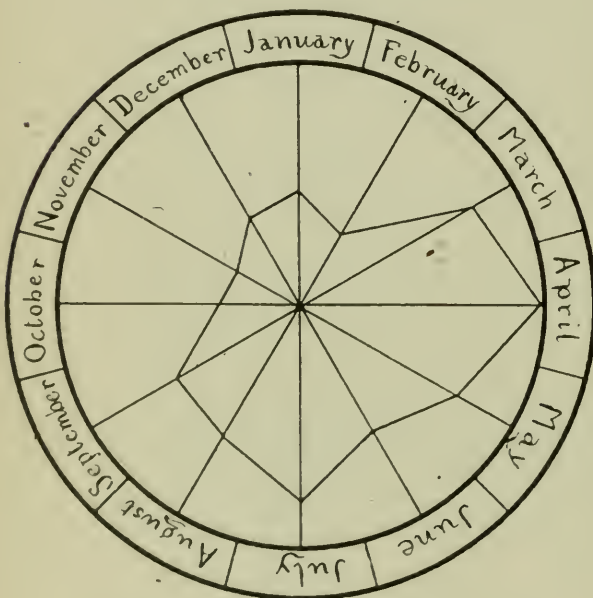


DIAGRAM 3.

Monthly mortality from Typhoid Fever in Cleveland for the year 1903.

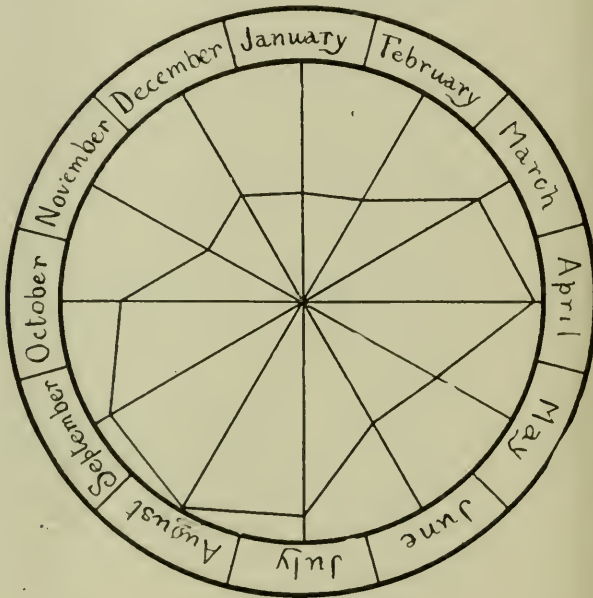


DIAGRAM 4.

Average variation of monthly mortality from Typhoid Fever in Cleveland for the years 1892-1902.

from November to February. Of these months January has the minimum mortality. The typhoid mortality is relatively high from March to October, and in this portion of the year August has the largest mortality. March, although having a smaller mortality than either September or October, has, as compared with the months nearest it, a relatively high mortality, and this must be due to the occurrence of spring epidemics.

Diagram 2 shows in the same way the monthly typhoid mortality for the entire registration area of the United States, and in many ways presents a marked contrast to the preceding. As is well known this area is made up of the New England States with New York, New Jersey and Michigan and, in addition, a considerable number of cities in non-registration states. The diagram is, therefore, based upon a relatively large urban population. Were we to construct separate diagrams for the urban and rural portions of this area the rural diagram would show a maximum mortality in October as in Diagram 2 but smaller mortalities during the remainder of the year than does this diagram. The urban diagram would show maxima in September and October, the mortalities of these months being the same, and mortalities for the remaining months of the year relatively greater than in the combined diagram here given. The contrast between Diagrams 1 and 2 is very striking. In Cleveland the greatest mortality is found in August as compared with October in the registration area; moreover, the difference between the maximum mortality and the mortalities of other months, especially those from February to July, are comparatively much less in Cleveland than in the registration area. The effect of spring epidemics, so clearly shown in the local diagram, is not noticeable in the general diagram.

From the occurrence of an unusually large number of cases and deaths, the year 1903 was an unusual one in the typhoid history of Cleveland. By reference to Diagram 3 it will be seen that the epidemic was not the result of a proportionate increase in the number of deaths throughout the year, but rather that the year was in every way a "freak" in that April rather than August showed by far the largest mortality. It is well to note, however, that had the distribution of the disease been the usual one there would have been an entirely abnormal amount of typhoid fever in the city, since there was hardly a month in the year in which the mortality was not twice the average, and the mortality from January on for six months was three to four times the normal.

The true interpretation of Diagram 4 may be somewhat doubtful. It represents graphically the average variation of the mortalities of each month from 1892 to 1902 from the average mortality of these months. It is a general rule in statistical work that the larger the number of observations from which results are derived the less likely is the result to be affected by accidental variations; for example, in an attempt to determine the frequency of relapse in typhoid, the results of independent observers, based upon one hundred cases each; would be more likely to vary, perhaps, largely, than would the results of two other observers if their conclusions were based upon observations of 1,000 cases. In this diagram it is shown that the greatest variation from the average mortalities is found in those months which have large mortalities and *vice versa*, and would seem to be conclusive evidence that the greatest variation in the number of deaths from this disease is found in those months which not uncommonly have high mortalities. It would seem that the explanation of this must be that while the possibility of infection is present at all times the amount of infection depends upon inconstant factors of which the state of the weather is presumably the largest and most variable, or is at least secondary, only, to the number of typhoid bacilli in the water-supply. A spring flood, such as occurred in the latter part of January, 1904, offers, under the conditions which have prevailed in Cleveland, a sure basis for the prediction of an increase in the typhoid mortality. When such variations in the weather are least likely to occur, or if they do occur are least likely to increase the amount of typhoid infection, the average variation of the monthly mortality is the least considerable. These conditions seem to be filled best from November to February when the Lake is, at least in part, frozen over, and less well in the months of May and June.

842 Logan Avenue

Feeding in Difficult Cases

BY J. J. THOMAS, A. M., M. D., CLEVELAND

The term "difficult," as applied to cases of artificially fed infants, may be a most comprehensive one, or a comparatively limited one, depending upon the point of view and upon the methods employed. The problem of the artificial feeding of infants, from a biologic, physiologic, chemical and physical standpoint, is an extremely complex one, and has challenged many of the brightest minds in medicine for a solution, with, as yet,

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indifferent results. Notwithstanding the fact that from this viewpoint the term "difficult" comprises practically all cases of artificial feeding, we feel safe in asserting that the practical methods derived from the theoretic studies are in a far less complex and chaotic state. We have as yet no better substitute for mother's milk than cow's milk in some form, and doubtless never shall have. While there are almost as many practical methods of feeding as there have been investigators in the field, there is, after all, far less difference in the essentials and results of the various methods than in the ease and convenience of application. For example, Backhaus milk, a German preparation, Bartley's mixture, and the whey modifications recently suggested by White and Ladd, are essentially the same thing. Although prepared by quite different methods, the end aimed at and attained is a modification of the combined proteids found in cow's milk to make the proportions of caseinogen and lactalbumin the same as in mother's milk. Again, practically the same results are attained in Biedert's cream mixture, and Gärtner's fat milk, in Germany, as by Chapin's and Holt's top milk, in this country.

One's judgment as to difficult cases is likely to be biased largely by the methods of feeding adopted. The haphazard method, or rather lack of method, of giving one commercial food after another, until one is found to agree, the whole matter being left, as a rule, to the mother, is invariably followed sooner or later by disastrous results. Disappointment is likely to follow the indefinite dilution of whole milk or the tentative addition of cream. With such methods all, or at least a great majority of cases, are difficult. On the other hand, under any method found to be adapted for artificial feeding in the vast majority of cases, and there are several good methods, a small minority of cases will occur for which the ordinary mixtures are not adapted, and for which one or many of the numerous devices for rendering the milk more digestible will have to be tried. Further, infants are met with on rare occasions who absolutely cannot take cow's milk in any form of modification whatsoever. It is to the difficult cases under modern methods that my remarks especially refer.

As every case of difficult feeding is in a class by itself and demands individual attention, it will be necessary to treat the subject in a quite general way within the limits of a paper. I would, therefore, be understood merely as suggesting some of the devices which have been helpful in a rather extended experience with all classes of cases in all conditions and surroundings. At the out-

set, I shall assume that the so-called percentage method of modification of cow's milk, as first suggested by Rotch and later elaborated by Holt, Chapin, Wescott and others, is best adapted to the management of the average American infant. This is desirable also since, to my mind, the percentage method is to infant feeding what the metric system is to applied science; it enables us to discuss the matter in intelligible language.

In a considerable number of cases of difficult feeding, the fault lies in lack of attention to details, rather than with unsuitable percentages of the different ingredients. This applies particularly to home modifications. The food may be imperfectly handled, prepared or administered. Feedings may be given too hot or too cold, too rapidly, too much at one time, at too short intervals; the bottles may be dirty, the nipples sour; a feeding may be refused or partly consumed at one time and heated again for the next feeding, etc. These details are only to be ascertained by judicious questioning, and in all cases a careful inquiry into the history should be made to ascertain what has been tried and how. If genius consists in the infinite capacity for taking pains, surely the successful artificial feeding of infants would seem to demand genius of the highest order. Too often these cases are considered of slight importance and not worth serious consideration; or, on the other hand, the hope is entertained that the infant will right itself if left alone. This policy results, usually, in a condition of chronic indigestion which of itself may not prove serious, but leads too often to infantile atrophy or to some form of intestinal disease. All authorities are agreed in laying special stress on chronic indigestion as a large factor in the etiology of acute intestinal intoxication, cholera infantum and ileocolitis.

It need scarcely be emphasized that one of the first inquiries should be as to the character of the milk-supply. It is established beyond dispute that the chief source of trouble in infant feeding is impure milk. The establishment of milk laboratories in many large cities has solved the problem of a pure milk-supply for their immediate localities. In several of the larger eastern cities, milk commissions appointed by local medical societies have in a most commendable and practical way made possible a commercial milk-supply of guaranteed purity and composition to be obtained from dealers holding certificates issued by the commission. Until such commissions are appointed in every city and town, the question of pure milk will be a most vital one.

A not infrequent source of trouble arises from the use of milk and cream of unknown composition. The degree of error

arising in this way, as also from the use of milk and cream of known composition in unskilled hands, has been well shown by the work of Edsall and Fife whose results are published in the *New York Medical Journal*, of January 9 and 16, 1904. They found that laboratory modifications appeared to be satisfactorily accurate, but that home modifications of milk and creams of unknown composition are likely to vary greatly from the formulas prescribed.

According to Holt "the source of trouble in some cases lies in the quantities and intervals of feedings. Some infants take small quantities at short intervals, others larger quantities at longer intervals. As a general rule, large reductions or small increases, either in strength or quantity, should be made." Again "some children do better on small quantities of a stronger food than on large quantities of a dilute food." In such cases the necessary amount of water may be given between feedings. Such appeared to be the case in one of my patients recently. The child, eight months old, was not doing well on a home modification of laboratory milk suited to the age. The mother, on her own initiative, changed to full strength nursery milk furnished by a milk dealer, and the child began to thrive at once. The only difference here must have been in the proteids which were doubtless $1\frac{1}{2}\%$ more in the nursery milk. I have known similar instances in which infants on home modifications of laboratory milk and cream did not do well, but began to thrive immediately when put on the same modifications of commercial milk and cream. The difference here was doubtless in the higher percentage of fat in the commercial cream than in the laboratory cream purchased. Commercial cream usually means a centrifugal cream containing from 20 to 25% fat. Of course from unreliable dealers it may contain as low as 13% fat.

If the source of trouble lies in the percentages of the modification, the proper adjustment to suit digestion is indicated. The source of trouble is rarely with the sugar. This should never be over 7% and rarely less than 4%. Authorities differ as to the necessity of using milk sugar rather than cane sugar. The fats are not infrequently the source of trouble, more often, doubtless, than is generally supposed. From recent analyses it would appear that the fat of cow's milk differs from that of mother's milk in its content of fatty acids to as great an extent as the proteids of the one differ from those of the other. Biedert lays great stress on the not infrequent occurrence of fat diarrhea, large quantities of fat being contained in the stools. According

to Heubner 5.9% (in breast fed), 5.3% (in infants on cow's milk) and 15% (in infants with indigestion) of the fat introduced in the food is expelled unchanged. Masses of fat in the stools may often be mistaken for lumps of casein. Fat appears as small, yellowish-white masses resembling casein, but is distinguished by being soluble in equal parts of alcohol and ether. Casein masses are larger and whiter. Microscopic examination will at once clear up any doubt. It is advisable, therefore, to reduce the percentage of fat in all cases with feeble digestion. According to Holt, it is not often that the fat can be raised above 3% in infants with feeble digestion, even when over six months of age. For younger infants it may be necessary to reduce the fat to 2% or 1½% or even 1%. In infantile atrophy this proceeding gives the best result. Recently I had an opportunity to test the advantage of reducing fats. A healthy, vigorous child, four months old, at the Infants' Rest, began to have frequent loose movements with loss of weight. Various modifications were tried with unfavorable results. Finally the fat was reduced to 2½% and the diarrhea quickly subsided. The stools have since been normal, and the child has made a satisfactory and progressive gain in weight although still getting only 2½% fat. The indications of a too high percentage of fat on the part of the stomach are frequent regurgitation, often an hour or two after feeding, of sour curdled milk or watery fluid. Frequently this becomes constant, and is popularly known as spitting the food. Sometimes excessive fat is shown in large dry white or gray stools of a peculiarly foul odor caused by fatty acids.

The chief trouble in milk modification results, as a rule, from the proteids, especially the caseinogen or curdy portion. This is certainly the experience in practice, although Heubner, in his recent admirable work on children's diseases, states that the casein of cow's milk is not, of itself, indigestible and that children digest large quantities of cow's milk casein, as well as they do smaller quantities of mother's milk casein. Proteid indigestion is shown by the vomiting of thick curds some hours after feeding, by habitual colic and curds in the stool. The indications here are to modify the proteids in some way. A number of procedures are available. The simplest of course is to lower the percentage of total proteids. This may be all that is necessary for a short time, a return to the normal being possible later as digestion becomes stronger. However, it not infrequently happens that an infant will not thrive on low proteids, and still shows proteid indigestion at any attempt to increase the percentage. Other

infants, especially if very young or very weak, can digest only the smallest possible percentage of combined proteids. In the management of such cases, the modification of the combined proteids, by rearrangement of the constituents, is of great help. The proteids of cow's milk consist essentially, according to recent analyses, of four parts caseinogen to one part lactalbumin or soluble proteids. Mother's milk proteids consist of one part of caseinogen to two parts lactalbumin. It is possible to so change the proportion of these soluble and insoluble proteids of cow's milk as to make them of the same proportion as found in mother's milk by the addition of whey, which is essentially a lactalbumin of milk containing nearly 1% of soluble proteids. When the food is being supplied by a laboratory all that is necessary is to write the prescription so as to call for the desired proportion of lactalbumin and caseinogen which may be varied, within certain limits, even to almost entire elimination of the latter. In home modification the proteids may be varied in several ways. The formulas devised by Wescott give accurate results and are practical though complicated. Graham, of Philadelphia, gives a series of combinations from mixtures of whey and different strength creams. A procedure suggested by Bartley, of Brooklyn, has at times been useful, especially before the recent modifications were elaborated. Allow milk to stand three or four hours in a cool place to separate the cream. Siphon off from the bottom of the containing vessel two-thirds of the milk, leaving the cream and the upper portion of the milk undisturbed. To the milk thus drawn off add one and a half drams essence of pepsin or liquid rennet, warm to blood heat and keep at or near this temperature for 20 or 30 minutes. Then warm with vigorous stirring to 155°F. and filter through muslin while hot. The temperature of 155° is necessary to destroy the action of ferments. This whey will contain approximately 1% of fat, 4.5% of sugar, 0.8 to 1.0% albumin, 0.7% of salts. When cold add the whey to the rich milk left in the vessel. The mixture thus obtained will contain approximately 1.2% caseinogen, 0.8 to 1.0% lactalbumin, 4.5% sugar, 3% fat, 0.7% salt. To one quart of the mixture add one-half ounce of milk sugar to raise the sugar from 4.5 to 6%. Different percentages of caseinogen may be obtained by drawing off more or less of the bottom milk. In my experience whey modifications have been of very great help in the management of difficult cases of proteid indigestion. Theoretically it would appear advisable to return to normal proteids as early as possible as whey proteids have been shown not to possess quite

the nutritive value of similar amounts of combined proteids. Another method of altering the proteids is by peptonization. This works well in some cases as a temporary expedient. The best method is to partially peptonize by adding a powder to each bottle about 15 minutes before feeding, keeping the food at blood heat during this time. The powders may be made according to the following formula:

Let C=Percentage of proteids per prescription.

" N=Total ounces of mixture.

Then $\frac{1.5}{4} \times C = (1)$ grains soda bicarbonate per 16 oz. of mixture.

$\frac{5}{4} \times C = (2)$ grains pancreatin per 16 oz. of mixture.

$\frac{N}{16} \times (1) =$ Amount soda bicarbonate required.

$\frac{N}{16} \times (2) =$ Amount pancreatin required.

Divide the total amount into powders corresponding in number to the feedings. If desired the peptonizing process may be continued for one-half to one hour, but this makes the food bitter from resulting peptones.

There seems to be no doubt that the addition of cereal solutions to milk mixtures renders the coagulum rather more flocculent or softer. These solutions or gruels are best prepared from the flours of barley, oat-meal, rice, arrow-root, etc. The method is given in all text-books. These gruels used as diluents seem in some cases to be of benefit in enabling the infants to take larger percentages of proteids than with water as a diluent. Dextrinizing the gruels, according to White and Ladd, destroys this power. According to their investigation a three-fourths percent starch solution gives the best results. Holt thinks that the use of these solutions for too long a time or in too large a quantity is responsible for a good deal of indigestion with flatulency. A food largely used in Germany and recommended particularly by Heubner in cases of difficult feeding after ileocolitis and in infantile atrophy is Keller's soup, a modification of Liebig's famous mixture. This is prepared as follows: To two ounces of wheat flour add 11 ounces of milk; soak the flour thoroughly and rub through a sieve or strainer. Put into a second dish 20 ounces of water to which add three ounces of malt extract; dissolve at a temperature of 120° F., and add 2½ drams of an 11% potassium carbonate solution. Finally mix all the above and boil for four or five minutes. This gives a food containing albumin 2%, fat 1.2%, carbohydrates 12.1%, in the form of malt sugar. According to Heubner one liter of this soup has a food value of 808 calories as compared with 606 to 724 calories for mother's milk and 690 for cow's milk. Infants can be well

nourished on this food for months. It may be diluted as the individual case seems to require. Buttermilk has been prepared in a similar manner for some time in Holland and is recommended by Heubner, Monti and others in Germany. With this I have had no experience.

In treating difficult cases, it is of first importance to bear in mind Holt's rules that the age or even weight is not a reliable guide, as in the average case. The state of the digestive organs at the time should be the sole guide. Low percentages should be selected at the outset and a gradual return made to the normal percentages for age and weight.

In rare instances it may be impossible, in any way, to prepare a milk mixture which will agree. In these cases, weak dilutions of some one of the various commercial foods may be tried with the tentative addition of milk or cream, as soon as possible. Condensed milk seems for some reason to be best adapted to these cases.

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The *Bacillus Dysenteriae* in Relation to the Diarrheal Diseases of Infants

A CLINICAL STUDY OF 237 CASES

BY DR L. EMMETT HOLT, NEW YORK

This paper contained the result of the use of the antidysenteric serum in 83 cases of intestinal infection by the *Bacillus dysenteriae* of Shiga, that had been studied under the direction of the Rockefeller Institute in various hospitals in New York, Boston, Philadelphia, and Baltimore. Thirty-eight of these 83 cases resulted fatally. On the whole, the outcome of the serum treatment was disappointing, although no unfavorable symptoms followed its use in any case. In a few instances, an eruption, usually urticaria, followed the injections. That decided improvement appeared to follow its use in only 12 cases was not very encour-

aging, but several factors worked against its success. In a large proportion of the cases it was used late in the disease. Again, it was, as a rule, only used in the most severe cases; and finally, at the beginning of the season, no rules had been formulated as to the size and frequency of the dose. Hence it was evident that many of the doses were too small. Four patients were moribund at the time the serum was given. Of the 83 cases, 67 were hospital patients. The serum should be used early, before serious lesions had developed, or before the patient's general nutrition had become too profoundly impaired. The latter referred particularly to cases in young infants. Experience had shown that the serum must be used in repeated doses, one or two doses being given each day, and continued for several days if the attack was severe. The promising cases for future trial of the serum were those in which the attack was acute, with symptoms of a severe infection in infants or older children with some powers of resistance. In other words, in all patients where the real problem was to combat the infection and not to maintain the nutrition of the patients, which even before the infection might have been a matter of the greatest difficulty.—*New York Medical Journal and Philadelphia Medical Journal.*

The June Typhoid Mortality

The June mortality from typhoid fever in Cleveland as shown in the article published elsewhere in this number of the JOURNAL was 2.3 per 100,000 of the population. The average June mortality from this disease for the years 1892 to 1902 was 3.2, with an average range from 2.1 to 4.3. For the first time since December 1902 the mortality of this month was less than its average in the 11 years considered. It is probable that the improvement shown in this mortality, as compared with that of the months just preceding, should be credited to the improvement in the city's water-supply, and that we have not yet seen the reduction in the number of typhoid deaths which will ultimately result from it; what the final result will be in this regard cannot, however, be determined in advance. A decided lowering of the June mortality is still required if we are to equal the June record for the registration area of the country, which was 1.1 per 100,000 in 1900.

The Cleveland Medical Journal

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EDITORIAL

Public Service

It is to be regretted that the outcome of the recent investigations of the conduct of the Department of Public Health are such that we are forced to the conclusion that our Board of Health exists in name only.

The JOURNAL has always insisted that the majority of the members constituting the Board of Health should be medical men. Since this is not required by our present code, the Board of Health as at present constituted becomes at once a mere figure-head, and in no sense represents the profession on an equal footing with the lay members. That under these circumstances our present Board has been so helpless is indeed not to be wondered at.

In judging, however, of the conduct of this department for the past two years, it is only fair that we should consider carefully the means available with which to do the many things so desirable, not to say necessary. Cognizant of all the conditions prevailing in this department we should perhaps be thankful for what has actually been accomplished, and look forward with a greater measure of hope for the future. Anyone at all interested

who will study the conditions and methods prevailing in Cleveland and, let us say, in Buffalo will be more than amazed at the striking difference in plant and equipment between the two cities. The history of Buffalo is known. Largely if not wholly to the efforts of a single courageous Health Officer, Dr Wende, the methods and existing conditions were literally revolutionized. If such a thing is possible in Buffalo, is it not possible in Cleveland?

As at present constituted, the management of our Health Department devolves upon a single officer who is not only expected to oversee the executive detail of what should be one of the most carefully managed departments of the city's government, but he must run here and there inspecting sewers, following up sanitary officers, and answering a hundred calls to as many different parts of the city. When at last the opportunity arises for an hour's attention to the details of the purely office work he is again interrupted a dozen times and more. What right have we to demand all this of any individual and expect the office detail to be carefully carried out and bedside disinfection thoroughly accomplished by the same man in a hundred homes? Is this not too much to ask?

Under the present arrangement of our Board of Health there are a number of vitally important departments of public sanitation in which there is absolutely no attempt made toward any sort of regular inspection, and under existing conditions no single individual as Health Officer could begin to assume these additional burdens, *i. e.*, inspection of meats, food-stuffs, slaughter of cattle for home consumption, dairy inspection, etc.

We should give our Health Officer, or some similar officer, absolute executive control of the Department of Health with the means at his disposal to employ the best men available as deputies or assistants, each in his special field, to do the work that is now demanded of one man and an absurdly inadequate office force. The conduct of the office of the department including the filing of birth and death notices, the compilation of vital statistics, and the very necessary records, that if properly carried out make such a department of inestimable value, should be second to none in the country. At present the condition of affairs in the office of the Health Department, though much improved during the last three years, is far from satisfactory and should be revolutionized. Let us add, however, that with the means at present available in our judgment those who have accomplished even the present order of things are to be congratulated in having done so much.

If there is any truth in the suspicion, which in the light of recent events seems well-grounded, that a change in the Secretaryship of the Board would meet with the approval of the powers that be, it is greatly to be deplored. We do not hesitate to express our approval of the way in which the duties of this office have been faithfully discharged, and any change at present in this important post would in our judgment be most unwise.

It is undoubtedly too much to expect that our present code can be at once so modified as to make our Board of Health a medical board with real power, but in spite of present tendencies and regretting as we do the attempt to force the resignation of the President of the Board, we are still sanguine for the future. Until the Department of Public Health can be taken out of the realm of practical politics we must be satisfied with a political board and nothing more.

The Consequences of a Governor's Interference with State Institutions

The lesson that our profession is striving to impress upon public officials as to political noninterference with public eleemosynary establishments seems not to have been learned by the present Governor of Illinois. Since this executive came into office he appears to have selected the State institutions, and especially the State hospitals, as the objects of his predaceous political ambitions. He invaded the State Board of Charities to place an obnoxious political secretary, thus mortally offending and forcing the resignation of two members who had for years adorned that board as prominent American charities workers. By the time his term—and we are thankful to record that it will be his last one—shall have expired, practically all the State hospitals in Illinois will have undergone reorganization according to the Yates political plan. As a result of this odious administration, honorable and competent trustees, superintendents, assistant physicians, executive officers, and employees have been compelled to relinquish their charges, and the State hospitals of Illinois have been plunged into a state of retrogression not to be entirely remedied by ten years of careful after-treatment.

Be it said, however, to the credit of the physicians of Illinois that this sad spectacle did not pass them unnoticed. The early murmurs of disapproval became protests, and, as the abuses continued, these protests became more vigorous with the better organized condition of the Illinois profession. Finally the indigna-

tion reached the point at which the doctors determined to combine and campaign against the Governor of Illinois. To this end the Illinois State Medical Society and that powerful municipal organization, the Chicago Medical Society, entered the field. Throughout the struggle the *Illinois Medical Journal*, the official organ of the State Society, has performed estimable service, particularly by the series of valorous editorials concerning the Governor's degradation of the State institutions.

There is, therefore, abundant evidence that the medical profession of Illinois carried on a most active opposition to the Chief Executive. How effective this opposition was in securing the defeat of Governor Yates for renomination is difficult to determine at this distance, but we believe it must have been at least a factor. The active antagonism of two or three thousand well-organized and thoroughly indignant physicians in a given commonwealth is surely a force to be reckoned with, and it must have had its share in causing the Governor of Illinois to fall prey to his narrow and selfish political machinations. It is a force which will claim the respectful attention of far-seeing politicians, and one that will in time purge our charitable, benevolent, penal, and medical public institutions of the blight of partisan political interference and intrigue.

Bedside Disinfection of Typhoid Fever by the City

As to the "complete" bedside disinfection of typhoid fever in Cleveland, proposed by the Board of Health, its completeness, and consequently its value, can only be proportional to the completeness of the report of cases of the disease. Without reference, however, to any action by the city, physicians having charge of cases which may by any possibility be typhoid fever should insist upon the utmost thoroughness in the disinfection of the stools. Carbolic acid retains its place as the most reliable disinfectant for this purpose, and it must not only be used in considerable amount but should be kept for some time in contact with the stool. Although typhoid bacilli are only found in the urine of about 25% of the cases, it is probable that in developed cases a larger number of bacteria are thrown off in the urine than in the feces. This emphasizes the necessity of disinfecting the urine of all cases, except those in which the bacilli are known to be absent; and not only for the benefit of the public but also for that of the patient himself, the necessity of assuring him a bacteria-free urine before his discharge. This may best be done by the

use of urotropin, which, according to recent work, will be most effectual if given from time to time during the course of the disease, rather than by waiting for convalescence when the bacteria may have colonized in the mucous membrane of the bladder.

Although this has never occurred in Cleveland to our knowledge, fears for the good name of a municipality have resulted many times in the concealment or denial of conditions even more serious than those presented by this disease; and epidemics of smallpox, yellow fever, plague, etc., have been prolonged in this way. Should the city, however, decide upon a supervision of bedside disinfection, those who are charged with the duty of preserving the public health should not be influenced by such considerations, but should encourage physicians in every way to report all cases of the disease. It would seem that suitable precautions should be taken not only in cases reported as typhoid fever to the Health Office but also that all patients from whom blood is sent to the City Bacteriologist for the Widal test should be considered probable cases without reference to the result of this examination unless the physician in sending the specimen states as his opinion that it is not a case of typhoid fever. It is possible that any measures such as are contemplated would be more cheerfully accepted by physicians in their practice, and would give as favorable results, if it were stated that in no case in which the physician explicitly assumes the responsibility for directing the disinfection of urine and feces would the city interfere in the matter, but that for all cases in which the physician does not assume this responsibility, or shall request the assistance of the Health Department in the matter, the city will arrange for and if the family is unable to bear the expense will pay for the bedside disinfection.

Where Angels Fear to Tread

The quasi-scientific opinions of certain lay writers often pass from the ridiculous into the dangerous. A case in point is a recent editorial in the *Ohio State Journal* (Columbus) of June 17, entitled "Don't Muzzle the Dogs." In the midst of endemic rabies reported from several parts of Ohio, and with a recent death from hydrophobia in Columbus, the editor of the *State Journal* discourses on the cruelty of the muzzling process as applied to dogs and advises against it; basing this admonition on his opinion that "there is not one chance in ten thousand that

there will be a mad dog in Columbus this summer." Further this same authority says: "The fear of rabies is almost mythical. In the last three years the New York Society for the Prevention of Cruelty to Animals has cared for nearly 160,000 dogs and not one case of the disease has been found. The malady is extremely rare and, contrary to popular superstition, a mad dog never attacks man or beast unless first attacked and is not afraid of water. Even this almost unknown disease is not dangerous to the public, if the suffering animal is left alone."

Such expressions are so wide of the facts as known to medical science, and so pernicious in the false sense of security engendered by them in the lay mind, that a public organ giving them circulation deserves the severest censure. His obligations as concerns public safety and public health are such that they should impel any conscientious editor of a public newspaper to safeguard by careful study his statements on topics like that treated by the *State Journal*. Had this editor passed through the trying experience of a practitioner of our acquaintance, his ideas as to the prevention of rabies and hydrophobia would doubtless have been modified. The physician in point, practicing in a small community in southern Ohio, has, in the last three years, encountered five fatal cases of hydrophobia in his private patients, while rabies has been endemic among the dogs, cattle, horses, and hogs in the vicinity. Perhaps, too, this overzealous scribe and champion of the abused canine might be led to a reasonable point of view were he to learn that hydrophobia has been practically eradicated in the countries in which muzzling ordinances have been rigidly enforced; notably England and Germany. That such is not the case in the United States is too plainly shown by the records of the rapidly multiplying institutes for the preventive treatment of hydrophobia.

The Harmful Nostrums Again

It is to be hoped that the extraordinary activity so recently displayed in the medical press throughout the country against the harmful nostrums which are foisted so outrageously upon an innocent public may result in some good. We need no better proof of the wonderful credulity of the human mind than that afforded by the hundred and one different preparations put upon the market, each a cure for "every ill to which the flesh is heir." Since we may be certain that they are prepared if not "for revenue only" none the less surely with revenue as the primary object, the long list of preparations offered as cures for the liquor habit,

published in Public Document No. 34 of the commonwealth of Massachusetts, is an extraordinary revelation of the success of such preparations. The delightfully honest (?) motives which underlie their production is shown by their composition.

Among these "sure cures" a so-called Arabian tonic is said to contain 13.2% of alcohol; another harmless "Sea-Weed" Tonic has 19.5% of alcohol; "Whiskol," a nonintoxicating stimulant, "whiskey without its sting," contains 28.2% of alcohol; two preparations which together are advertised as a cure for the drink habit contain respectively 41.11 and 28.22% of alcohol. It is easy to understand how it is possible for the manufacturers of these preparations to secure the hundreds of written testimonials as to their efficacy, or should we say the delight of taking, even though they may not always accomplish the result desired. It has been suggested that the post-office department combat this evil by refusing the worst offenders in this class of manufacturers the use of the United States mails. If this result could be accomplished it is safe to say that their fight for existence would be made vastly more difficult. There is really only one solution to this problem, it seems to us, and that is the requirement by law that each manufacturer should publish full formulas of his various products. In this way, and in this way alone, can the manufacturers protect themselves against each other and against an often unjust criticism.

Examination for Army Medical Service

The examination of applicants for commission in the Medical Corps of the Army will be materially modified after July 1, 1904, when the amended regulations governing the matter will go into effect. Immediate appointment of applicants after successful physical and professional examination—the latter embracing all subjects of a medical education—will be discontinued; thereafter applicants will be subjected to a preliminary examination and a final or qualifying examination with a course of instruction at the Army Medical School in Washington intervening.

The preliminary examination will consist of a rigid inquiry into the physical qualifications of applicants and written examination in the following subjects: Mathematics (arithmetic, algebra and plane geometry); Geography; History (especially of the United States); Latin grammar and reading of easy Latin prose; English grammar, orthography, composition; Anatomy; Physiology; Chemistry and Physics; Materia Medica and Thera-

peutics; Normal Histology. The subjects in general education above mentioned are an essential part of the examination and cannot under any circumstances be waived.

The preliminary examination will be conducted concurrently throughout the United States by boards of medical officers at most convenient points; the questions submitted to all applicants will be identical thus assuring a thoroughly competitive feature, and all papers will be criticised and graded by an Army Medical Board in Washington. Applicants who attain a general average of 80% and upwards in this examination will be employed as Contract Surgeons and ordered to the Army Medical School for instruction as candidates for admission to the Medical Corps of the Army; if, however, a greater number of applicants attain the required average than can be accommodated at the School the requisite number will be selected according to relative standing in the examination.

The course of instruction at the Army Medical School will consist of lectures and practical work in subjects peculiarly appropriate to the duties which a medical officer is called upon to perform. While at this School the students will be held under military discipline, and character, habits and general deportment closely observed.

The final or qualifying examination will be held at the close of the School term and will comprise the subjects taught in the School together with the following professional subjects not included in the preliminary examination: Surgery; Practice of Medicine; Diseases of Women and Children; Obstetrics; Hygiene; Bacteriology and Pathology; general aptitude will be marked from observation during the School term. A general average of 80% in this examination will be required as qualifying for appointment, and candidates attaining the highest percentages will be selected for commission to the extent of the existing vacancies in the Medical Department. Candidates who attain the requisite general average who fail to receive commissions will be given certificates of graduation at the School and will be preferred for appointment as medical officers of volunteers or for employment as contract surgeons; they will also be given opportunity to take the qualifying examination with the next succeeding class.

It is not thought that, for the present at least, the number successfully passing the preliminary examination will be greater than can be accommodated at the Army Medical School, nor that the number qualifying for appointment will exceed the

number of vacancies. If, however, the class of candidates qualifying should be larger than reasonably thought, the young physicians who fail to receive commissions will not have wasted their time, as the course of instruction at the School, while in a large measure specialized to Army needs, is such as will better fit them for other professional pursuits, and furthermore they will have received a fair compensation while under instruction.

Admission to the preliminary examination can be had only upon invitation from the Surgeon General of the Army, issued after formal application to the Secretary of War for permission to appear for examination. No applicant whose age exceeds thirty years will be permitted to take the examination, and the authorities at the War Department desire it distinctly understood that this limit of age will be rigidly adhered to. Hospital training and practical experience are essential requisites, and an applicant will be expected to present evidence of one year's hospital experience or its equivalent (two years) in practice.

The first preliminary examination under the amended regulations above referred to will be held about August 1, 1904; those desiring to enter the same should at once communicate with the Surgeon General of the Army, Washington, D. C., who will be pleased to furnish all possible information in regard thereto.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Hyoscin: H. S. Novle, in the *American Therapist* for March (reprint from *Yale Medical Journal*),

reaches the following conclusions concerning hyoscin: (1) It is not by any means the case that all patients behave the same under its administration, nor will every case be benefited. In cases of acute or recurrent excitement, two or three cases out of every five are benefited, and in recurrent forms of insanity attacks of maniacal excitement are frequently averted. (2) Old people, and those whose health is below par, are most profoundly affected by even moderate doses of the remedy. In such cases it is always imperative to begin with the minimum dose. (3) The remedy is just as efficacious by stomach as hypodermically when used in the same dose, although the action is perhaps not as rapid. (4) A tolerance of the drug is not established except within certain limits. He states that if the dose be cautiously increased up to about one-sixtieth grain without the desired effect, it is entirely useless to increase it further. In its use the toxic effects of large doses are to be avoided. They do no good, and even endanger the life and health of the patient. (5) Frequent doses are not required. He rarely gives more than two doses in 24 hours. If two, or possibly three, doses do not accomplish the desired result, it is useless to repeat the dose more frequently. Do not convert a remedy into a poison.

(6) Hyoscin produces sleep indirectly by allaying cerebral excitement and morbid motor activity. Hyoscin with bromid of potassium, and hyoscin with chloral, are two combinations sometimes employed. He has never obtained anything like curative effects from the use of hyoscin, but has been able by its judicious use to keep cases of recurrent insanity and folie circulaire in the convalescent halls which otherwise would have been obliged to spend fully one-third of their time in the excited wards. One advantage which hyoscin possesses over sedative drugs used in the treatment of the insane is its tastelessness and the minuteness of the dose. He has also found it very efficient in relieving the excruciating agony from a spasmodic cramp in the muscles of the lower extremities upon retiring at night or at some unusual exertion. One two-hundredth or one one-hundredth grain of hyoscin on retiring will entirely obviate the trouble.

Typhoid Fever: Morris Manges, in the *New York and Philadelphia Medical Journal* for April 23, calls attention to the fact that there is a form of fever during typhoid which at times is even more trying than the hyperpyrexia, and consists in the persistence of moderate or low febrile rises in the fourth or fifth week. Some of these cases are prolonged primary attacks, in cases in which there is a persistence of the fever, in spite of the fact that no complications can be discovered. Other cases, however, have definite causes for the prolongation of the fever, and of these the two most important are constipation with its resultant toxemia from absorption, and the other inanition, *i. e.*, it may be an inanition temperature. When the cause is constipation he does not hesitate to give castor oil late in the disease, when not satisfied that the bowel is properly cleared by high oil enemata, provided of course that no contraindications exist as to its use. Another method of arresting these prolonged temperatures is the administration of large doses of quinin, 20 to 25 grains every afternoon for two or three days. The effect of these massive doses is often very prompt. Experience has convinced him that the persistence of fever may be due to inanition. This is not infrequently observed in cases in which the stereotyped starvation with milk alone has been carried out. In these cases he has observed that increase of the diet was soon followed by a gratifying return of the normal temperature. He has had no personal experience with the class of cases recently described by Delafield in which the unduly prolonged fever is only cured by putting the patients on a full diet, and out of bed.

Digitalin: In the *Medical and Surgical Monitor* for April, Wm. F. Waugh states concerning digitalin that it is of the utmost importance that the physician using this powerful drug shall know exactly how to secure the greatest benefit from it, and just when the maximum has been attained. The indication of the exact dosage is to be taken from the pulse for the useful action is manifested there rather than in the heart itself. If just enough digitalin is given to impart normal tone in the relaxed vessels a great obstacle will be removed from the heart, and its work will thus be made easier. By this the work the organ must do is reduced so as to come within the limits of its strength and with this physiologic rest, there will be an improvement of the heart's nutrition. If thus given the drug may be continued for very long periods without injury but with distinct benefit. If, however, the dose be increased

until the vessels are abnormally contracted, the heart's work will be increased and exhaustion hastened. The only other means by which a weak or imperfect heart may be made to perform its vital functions indefinitely is by reducing its work to the limit of its strength, and this demands the lessening of the bulk of blood by enforcing the dry diet. It is evident then that digitalin is contraindicated in any cardiac affection in which the arterial tension is not below normal. When the tension is above normal, as in the atheroma or in cirrhotic nephritis, there is danger in the drug. Merck gives the dose of digitalin, "German," as one sixty-fourth to one thirty-second grains four times a day; the maximum daily dose is one-third grain. Beates has administered the Germanic digitalin (digitalein) to patients with organic affections of the heart in doses of one-fourth grain three times a day for years without harm or wearing out of the remedy. Digitalin is not suited to the subcutaneous method of administration.

Potassic Chlorate: In the *Journal of the American Medical Association* for April 23, Paul Bartholow calls attention to the dangers in using potassic chlorate. A frequent and widespread source of error and consequently of danger arises from confusing potassic chlorate with potassic chlorid (K. & L.), the chlorate being thought to possess properties and effects identical with the chlorid, and not to be any stronger. There is a well-known danger in mixing the chlorate with organic or combustible substances, but a French surgeon recently prescribed potassic chlorate in conjunction with saccharin, a violent detonation following the mixing of the two ingredients. It is instructive to note that potassic chlorate acts in a state of almost complete molecular integrity, as it passes practically unchanged through the body, and judging from the way in which it develops a toxic strength, it seems likely that its molecule is endowed with an uncommon potentiality, for its pharmacodynamic effects are often irresistibly sudden and fatal. This sudden explosiveness of poisonous power is to be clearly seen in the cases in which the salt has been used merely as a gargle and has caused death. On this postulate of its latent danger it is possible to rest a good case against potassic chlorate. Bartholow states that no one of any practical experience can doubt that potassic chlorate may profoundly alter the composition of the blood. What an abundant clinical experience now shows is that this alteration of the blood may take place suddenly and after comparatively small doses. In several instances, a small dose when taken on an empty stomach has caused death. It shows its utmost power under these conditions, *viz.*, where there is no mechanical interposing agency (such as food, aqueous contents of the stomach) between the salt and the avenues of the blood. It is under these conditions, as any valid observation will show, that potassic chlorate may display a treacherous power.

Hydrotherapy: Otto Juettner, in the *Therapeutic Review* for June, states concerning the hydrotherapeutic treatment of typhoid fever that we should remember two facts, *i. e.*: (1) Fever is not *per se* a destructive but a constructive element, and (2) fever and high temperature are in no sense of the word synonymous. In applying cold water to the body surface, the reduction of the temperature is only a secondary consideration. Cold applications are made to bring about a cutaneous anemia. The sudden and forcible contraction of the blood-

vessels of the skin is followed by a reaction consisting in the so-called secondary hyperemia. The vessels dilate and in this way we produce warmth and increase function of the skin by a primary cold application. The direct effect is contraction of the vessels, the secondary effect is dilatation of the vessels and cutaneous hyperemia. When the secondary effect supervenes, the skin becomes functionally more active, and excretion of morbid material (the evaporation of diaphoresis) is the necessary result. The excretion of morbid material is coincident with a lessening of the exciting cause of temperature. The temperature, as a necessary result, drops. In this way a cold application aids the fever process and combats the high temperature. To leave a patient in a cold bath until the temperature drops is absurd. This plan is based upon an amateurish conception of the action of cold water in typhoid fever. In cases in which the system is much depressed, and cutaneous reaction is uncertain, the warm bath is a safer water application. The continued application of cold water to the skin cannot be too emphatically condemned. The suddenly induced anemia of the skin must *always* and *promptly* be followed by increase in the cutaneous circulation and stimulation of the skin function. This holds good not only in typhoid fever but in all conditions characterized by high temperature.

Thiocol: E. Fletcher Ingals, in the *Medical News*, believes that thiocol may be given to pneumonic patients in large doses without disturbance of the digestive organs, and without apparent harm. In no instance has he observed that it affected the temperature, pulse, respiration or physical signs, because in the cases in which these factors indicated improvement the natural course of the disease would have been expected to cause a similar change. He has always begun with moderate doses and has taken three or four days to reach the maximum dose of 120 grains. He suggests that in future trials five grains be given as the initial dose, and that the amount be increased rapidly until 30 grains are given at each dose, providing that it causes no unpleasant symptoms. In a disease running so rapid a course as pneumonia quick action must be obtained if a remedy is to do much good.

Acetanilid: J. R. Johns, in *American Medicine* for May 21, asserts that acetanilid is a comparatively new remedy. It is not now used as freely as an antipyretic nor in such large doses as when first employed. The dose ranges from two to eight grains with a maximum for 24 hours of about 30 grains. He is partial to its use in combination with caffein and especially the formula which also contains monobromated camphor. Acetanilid is our best remedy for the relief of pain not due to local inflammation, reflex pains, etc. When there is marked irritability, the remedy may be advantageously supplemented by one of the bromids. Acetanilid is a valuable adjunct to other major remedies as a modifier of action. Such remedies are quinin, salicylates, opium and calomel. In some instances it acts mainly as a corrective of the effects of such remedies. In others, and he believes in the majority of instances, it is effective as well in controlling and curing the condition for which treatment is pursued.

Book Reviews

A Text-Book of Operative Surgery, Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery. Written for Students and Practitioners. By Warren Stone Bickham, Phar. M., M. D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York. With 559 Illustrations. Philadelphia, New York, London. W. B. Saunders & Co., 1903.

In this work on operative surgery, which gives evidence of a large amount of labor expended on it, considerable space is devoted to regional anatomy. The general principles of operative surgery, anesthesia, plastic surgery, and many of the special operations are omitted. In part I, comprising 457 pages, the operations of general surgery are considered; 130 pages are devoted to the surgery of the arteries and veins; numerous methods are given and there is an unnecessary amount of elaboration. Indeed in other parts of the work as well one misses a careful and judicious selection of methods so that confusion might arise in the mind of the inexperienced operator or the student. Chapter III takes up the surgery of the lymphatics and glands. In chapter IV there is a very good exposition of the surgery of the nerves. One fails to find a description of Cushing's operation for the removal of the Gasserian ganglion and of Abbe's method. The chapter on the surgery of the bones and joints and on amputations are excellent. In part II, comprising some 500 pages, the operations of special surgery are taken up. Objections might well be raised to some of the statements made in the book; for instance, not many operators would agree that in trephining "it is probably best to open the dura in all cases." A description of some practically obsolete operations, such as lumbar colostomy and of choledocholithotripsy might well be omitted. The illustrations, which are for the most part original, are well selected and executed and the publisher's work has been well done. On the whole, Bickham's operative surgery can be highly recommended.

Manual of Materia Medica and Pharmacy. By E. Stanton Muir, Ph. G., V. M. D., Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third edition. Revised and enlarged. Philadelphia, F. A. Davis Company, Publishers, 1904.

This little work presents a very complete summary of the essentials of materia medica and pharmacy. It lacks the lengthy detail of the usual text-book, and although a few of the newer remedies have been intentionally omitted, it embodies practically all which are of recognized therapeutic value. The first part is devoted to general considerations of the subjects treated. The second part considers the individual drugs, while the third portion comprises pharmacy. The metric system is used although the English is also given. The book contains a complete index, adding much to its value for the class-room. It is a work to be recommended.

A Text-Book of Surgery for Students and Practitioners, by George Emerson Brewer, A. M., M. D., Lecturer on Clinical Surgery at the College of Physicians and Surgeons, Columbia University, New York, etc. Illustrated with 280 engravings in the text and seven plates in colors and monochrome. Lea Brothers Company, New York and Philadelphia, 1903.

This book is intended by the author to be a "comprehensive, yet abridged, text-book on surgery" and an attempt is made "to give the essential facts in practical surgery as briefly as is compatible with clearness." In this difficult undertaking he has succeeded well, though in many

parts the descriptions are necessarily brief, sometimes being scarcely more than definitions; for instance, but 17 pages are devoted to tumors and gangrene is disposed of in less than half a page. There is a good chapter on fractures. The work is quite up-to-date and recent advances and improvements receive due mention. The typography is excellent and the illustrations are well selected and good.

Subjective Sensations of Sight and Sound, Abiotrophy, and other Lectures. By William R. Gowers, M. D., F. R. C. P., F. R. S. Philadelphia. P. Blakiston's Son & Company, 1012 Walnut Street, 1904.

This little volume contains really the substance of ten lectures which have appeared in print at various times, from the pen of the distinguished author. The range of subjects is a wide one and includes such diverse topics as the Subjective Sensation of Sound, Inevitable Failure, which is really a study of syphilitic arterial disease, a very delightful chapter entitled "Abiotrophy, Diseases from Defect of Life," and a very interesting lecture upon Metallic Poisoning. The volume is concluded by a chapter upon the Use of Drugs, of which Gowers states, that although delivered originally some years ago seems to need no change in the consequence of fresh knowledge. This is a very delightful volume of essays and one which every physician should not only read but study carefully.

The Mothers' Manual, A Month by Month Guide for Young Mothers, by Emelyn Lincoln Coolidge, M. D. Illustrated. New York. A. S. Barnes & Co., 1904.

This little volume primarily intended for the guidance of the young mother is a most excellent work of its kind and deserves really great credit for the way in which the whole subject has been made clear by the use of the simplest sort of English. It covers the first year of the baby's life, month by month, and then carries the child through the seventh year by periods, with a chapter devoted to backward children and an appendix devoted to the proprietary foods and to the baby's first wardrobe. Throughout the work there is nowhere a suggestion of attempting to advise when for any reason a physician should be called. We are very glad to recommend this manual as one of the very best of its kind.

Epilepsy and Its Treatment. By William P. Spratling, M. D., Medical Superintendent of the Craig Colony for Epileptics; Secretary of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics; Member American Medico-Psychological Association, New York Academy of Medicine, Buffalo Academy of Medicine, Rochester Pathological Society, American Medical Association, etc. Fully illustrated. W. B. Saunders & Co., 1904.

Among the diseases with which the physician deals, epilepsy is one of the most melancholy. The advent of the bromids brought a hope that has not been justified by their trial. Even with the best treatment statistics show only about five per cent of cures. When one considers that the mental faculties are profoundly affected in many cases, that patients are in constant danger of death by accident in an attack, and that there is a popular dread of the disease and a somewhat unjust stigma attached to it, no effort seems too great in affording relief to those suffering from it. Up to this time we have been profoundly ignorant of the real nature of the disease. We are just now passing into a period of greater knowledge along two separate lines, one of psychic research, the other of investigation of physical conditions, including visceral disease and glandular affections. The line between epilepsy and hysteric convulsions will probably have to be

redrawn. The modern conception of hysteria as a disassociation of consciousness from sensory and motor activities will probably make it include many attacks which have formerly been considered epileptic, especially Jacksonian attacks and many cases of psychic epilepsy. Cerebral lesions in childhood are among the best known of the physical causes of the disease. Cases of scrofulous origin, and toxic cases due to disease of the thyroid, thymus and suprarenal glands are frequent. To these must be added attacks due to intestinal poisoning and eye-strain and to abnormalities of other organs, such as the kidneys, the uterus and the ovaries. The study of these various causes of epileptiform convulsions is comparatively new, and the time for their incorporation into text-books or even treatises has not yet come.

Possibly the most interesting portion of Spratling's book is that devoted to the general treatment of the disease and especially its treatment in colonies. The author's experience as superintendent of the Craig Colony at Sonyea enables him to see the advantages of the combination of home life with control and scientific supervision which is only possible in such an institution. Spratling considers diet not so important as it was formerly thought. He attributes the prevalence of digestive derangements among epileptics to excessive and unskilful use of the bromids. Eye-strain he thinks unimportant and sustains his position by summarizing the work of Gould on patients at Sonyea. Although Gould found errors of refraction in a much larger proportion of cases than among the nonepileptic, correction of the refractive error in 31 cases resulted in no cure, and in obvious improvement in at most one case. Trephine operations at the Colony gave no better results, the only apparent cure being in a patient in whom the attacks continued after trephining and ceased after an abdominal section. Of the 34 cases operated on, in 20 the attacks were due to head injuries; in nine cases the attacks were somewhat fewer than before operation, in these patients attacks were worse than before. As the five per cent. of cures cited by Spratling from drug treatment are in the more favorable half of the patients in the asylum, the other half being considered hopeless, it will be seen that even under the favoring conditions of colony life epilepsy is still obstinate and well-nigh unconquerable. Spratling's treatise is thorough and well written, and the book is a creditable one in every way, as a compendium of what is known in regard to a really little known disease and a contribution and addition to our knowledge from a study of the Sonyea cases.

The Medical News Pocket Formulary. By E. Quin Thornton, M. D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. New (sixth) edition. Leather, wallet shape for the pocket. Lea Brothers & Co., Philadelphia and New York, 1904. \$1.50 net.

We have to acknowledge the receipt of the sixth edition of the Medical News Pocket Formulary, by E. Quin Thornton. This, the last edition, of this well-known formulary maintains the high standard set by the earlier editions, and contains really a vast amount of useful information in very small and compact space. We question seriously the true value of any formulary of this character which must have a tendency to discourage original thought on the part of the individuals who may turn to it, though the prescriptions throughout seem to represent the best knowledge of the therapeutics concerned and include all the newer drugs and remedies.

Medical News

J. W. Kirgan, of Batavia, will practice in Dayton.

S. B. Taylor, of Columbus, sustained a fractured clavicle.

Charles Shattuck, of Coal Grove, is not expected to live.

Painesville's new hospital was opened to the public on July 8.

W. L. Jackson will remove to Newark, Ohio, from Zanesville.

C. A. Shaffer, of Hamilton, sustained a fracture of the right ankle.

Loring C. Flack and Estella Bulger, of Fostoria, were married July 5.

S. Morgenroth will change his location from Bellefontaine to Akron.

Henry S. Kimmel, of Dayton, is reported growing gradually weaker.

W. W. Scarbrough, of Upper Sandusky, will locate in Mt. Vernon.

F. W. Webb, of Geneva, has opened permanent offices in Ashtabula.

Dr Bell, of Bellevue, has given up his practice on account of ill health.

W. H. Gage, of Kenton, leaves on a year's trip to California and Mexico.

Dr and Mrs Hisey, of Toledo, returned from their wedding tour on July 2.

Cases of tetanus recovered at the German Deaconess' Hospital, Cincinnati.

John Goddard, of Cleveland, has received a medical appointment in Honolulu.

The Toledo Medical College will, in the future, be a part of Toledo University.

Akron's waterworks officials claim that Akron's water is a drink fit for the gods.

Of the 222 applicants who recently took the State examination, 12 failed to pass.

Akron physicians object to the contract system of choosing physicians for the poor.

Columbus dairymen are seeking "protection" from the Columbus Board of Health.

J. C. Pence, of Lima, has established a tent hospital for the care of tubercular patients.

Fred Ranson, of Mt. Vernon, has accepted a position in the Allegheny General Hospital.

Governor Herrick has appointed a committee to select a site for the tuberculosis hospital.

Marietta's physicians will build a hospital. Plans for organization are already in progress.

A report of the Lawrence Hospital, Columbus, for the past four years has just been issued.

A. W. Jones, of Akron, was appointed physician for the city's poor at a salary of \$350 per year.

V. B. Weller, of North Lewisburg, will practice in Marysville, if he can find a suitable location.

The East Liverpool hospital project was helped along by a "benefit" to the extent of \$1,000.

Frank Warner, the present State Health Officer, favors filtration for the purification of water.

R. S. Carroll has closed his interest in the Marysville sanatorium and will leave for Ashville.

The new building for Grace Hospital, Conneaut, will be ready for occupancy on August 1.

J. G. Stucky, of Millersburg, has been kept from attending to his practice by a fracture of the wrist.

Ashtabula's new hospital was dedicated June 30. The new structure was erected at a cost of \$25,000.

Mayor Jones, of Toledo, has vetoed the bill giving physicians in buggies right of way over other vehicles.

Dr Hendrickson, of Springfield, will change his location from Xenia where he has practiced for a short time.

Dr Humphries, of Dayton, has returned home from his trip to England, Scotland and other countries abroad.

The Clark County Medical Society held a memorial meeting, on June 21, in commemoration of the late H. H. Seys.

Frank Warner, of Columbus, was elected President of the State Board of Health at its last meeting held in Cleveland.

J. M. Buckingham, of Springfield, was elected Health Officer at a salary of \$1,200 per year to succeed the late H. H. Seys.

The thirteenth annual session of the Mississippi Valley Medical Association will be held at Cincinnati, October 11, 12, and 13.

The Sherrodsville hospital, which will be erected through the efforts of J. D. Aldridge, will, in a few weeks, be a thing of reality.

John E. Darby, of Cleveland, was robbed of \$50 and his medicine case on the night of July 4 while on his way home from a patient.

W. R. Wall has announced his candidacy for Coroner of Cuyahoga County on the Republican ticket. He is the third to enter the race.

Youngstown City Hospital and Mahoning Valley Hospital are having much difficulty over the arrangement of a standard for the indigent poor.

Health Officer Smith, of Columbus, has been recommended for the position of expert sanitary officer to take charge of the work of patrolling the water shed.

Health Officer Busch, of Sandusky, is very seriously ill. An operation has been performed and his official duties are being cared for by a temporary health officer.

The members of the Dayton Academy of Medicine, with their wives and lady friends, enjoyed a delightful evening's outing recently at the West Milton County Club House.

One of the national medical associations has appointed a committee of three to investigate and report upon the proposition to do away with compulsory vaccination and quarantine for small-pox.

At the last meeting of the Delaware County Medical Society, E. M. Hall read a paper on "Dysentery." The paper was an interesting and instructive one and greatly enjoyed by those present.

The Lawrence County Medical Society held a very profitable meeting at Ironton, at which W. S. Eakman read a paper on "Obstetrical Observation." Dr Price gave a very instructive chemical lecture.

The joint meeting of the Central Ohio Medical Society and the Crawford County Medical Society, which was held recently, was pronounced a success. All the speakers except Dr Hamilton, of Columbus, were present.

The Butler County Medical Society held a well-attended meeting on June 29. Garrett Pigman read a paper on "Fractures of the Femur." Demonstration of an apparatus for handling fractures of the pelvis and lower extremity was given by C. M. Paul, of Cincinnati.

Deaths

Henry Clay Wells, of Tiffin, died June 26.

H. C. Howells, of Hamilton, died recently.

C. S. Moore, of Zanesville, died of opium poisoning on July 1.

W. S. Spriggs, the oldest practicing physician of Noble County, died July 8, of apoplexy.

Robert Stephenson, of Springfield, died recently. He was but 25 years old and had passed his examination last year.

John H. Creekbaum, of Cincinnati, died recently at Salt Lake City. He was born at Ripley, Ohio, and graduated from the Ohio Medical College last year.

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Syphilis of the Stomach

BY CHARLES F. HOOVER, M. D., CLEVELAND

Syphilis of the stomach is a syphilitic manifestation which, until recent years, has been very little considered in differential diagnosis. The varied characters of syphilis of the stomach, and the symptoms it may produce, have so many points in common with other diseases that the diagnosis during life must rest finally on the therapeutic test. The therapeutic test in syphilis does not imply the relative inaccuracy which that term suggests in other fields of pathology. Pathologists recognize the uncertainty of histologic diagnosis in syphilitic structures and concede the therapeutic test to be as certain a diagnostic measure as any we have at our command. The three cases I have to report each presented entirely different symptoms. One case may have been ulcerative, one the diffusely sclerotic form, and one a gummatous growth causing pyloric obstruction. In none of the cases was there a palpable tumor or area of maximum tenderness. In two cases the only symptoms referable directly to the stomach were pain and vomiting after the ingestion of food. Nothing abnormal could be detected on physical examination so far as the stomach itself was concerned. In one case the stomach was dilated a hand's breadth below the umbilicus. Retention of chyme and poracous vomiting were continually present and distressing but no tumor nor area of tenderness could be detected. In two of the cases there was only a clear history of syphilis 16 and 20 years prior to the time they came under my observation, but no evidences of syphilis were apparent on physical examination. In one case there was a saddle nose and perforated soft palate which had been acquired about 25 years before.

Unless the physician is strongly impressed with the possibility of syphilis being the etiologic factor, iodid of potassium will not be given on account of its irritating properties to the stomach. When in doubt give iodid of potassium is a maxim easily followed when the stomach is not at fault. It is the line of least resistance. But the administration of iodid of potassium in a doubtful case in which gastric pain and vomiting are the conspicuous symptoms is abhorrent to the mind of the therapist unless the idea of syphilis is paramount in his speculations. Failure to recognize the true character of syphilis of the viscera is always followed by a calamity, whereas no work of the physician gives such gratifying results as the proper treatment of visceral syphilis.

The first patient, a woman 40 years old, seen first by me a year and a half ago, gave a history strongly suggestive of hyperchlorhydria (with gastrosuccorhea) but possibly accompanied by ulcer. There had been no loss in weight or color but there was always severe pain within half an hour after eating any kind of food, solid or liquid. When the pain was severe small amounts of food were vomited but she seemed never to completely empty the stomach during these vomiting attacks. Pain and belching of gas without relief occurred nearly every night and caused much loss of sleep. There was a relish for food but fear of distress deterred her from eating as much as she liked. The stomach-tube was passed with considerable difficulty after an Ewald test-breakfast, but only a very small amount of thick chyme was procured, not sufficient to give a filtrate. This gave a reaction for free hydrochloric acid, *vis.*, moistening congo red paper and then warming it over a flame, after which the blue color remained. The patient stoutly refused to allow the passage of a stomach-tube a second time. The stomach was not dilated. There was no succussion, no tenderness on palpation and no thickening or tumor palpable. There was a very definite history of syphilis 16 years before, for which she was treated six months. Since that time there has been no return of any syphilitic manifestation. Iodid of potassium was given in doses of five drops of the saturated solution three times daily and increased to 10 drops three times daily. More than this caused pain and nausea, but so long as the dose was not larger than 10 drops it was well tolerated and all symptoms disappeared after three weeks' treatment. The patient was not convinced of the correctness of the diagnosis and discontinued the medicine after about six weeks. A year later the symptoms returned and she again consulted me. The iodid of potash in small doses three drops *t. i. d.* was begun and well tolerated. Improvement promptly began and the dose was increased to 10 drops *t. i. d.* The patient was told to continue the medicine for several months but has not since been seen by me. Pain and vomiting, which was twice relieved by the same treatment without any strict modification of diet, I think, will justify a diagnosis of syphilis.

The second patient, a man 50 years old, was seen in a remote country district a year ago. The patient had vomited all ingested food for six weeks. There was constant epigastric pain, but no evidences of retention of chyme. The patient was emaciated, profoundly anemic and greatly prostrated. He was unable to sit up in bed. There was a saddle nose and perforation of the soft palate in the median line near the hard palate. The hole was large enough to admit a goose quill. These defects were acquired 25 years before. The patient had two healthy children 18 and 20 years old. His wife died a year previous to this time from what was supposed to have been cancer of the stomach and liver. During his wife's last illness he had an attack exactly like the one with which he was then suffering and was said to have been reduced to nearly the same condition. His physician out of sheer desperation gave him iodid of potash 10 grains *t. i. d.* and improvement began directly. After six weeks the medicine was discontinued and the patient considered himself well until the last attack of vomiting commenced. Besides the signs above described there was nothing demonstrable on physical examination. The stomach was not dilated nor sensitive to pressure, nor could any thickening or tumor be detected. The patient had drunk a half hour before a few ounces of panopeptone. The stomach-tube was passed and the whole amount recovered unchanged in appearance and gave the reaction of free hydrochloric acid to congo red. Iodid of potash was advised but the patient died a few days afterward. No autopsy was held.

This patient was undoubtedly syphilitic and recovered a year before from symptoms identical with those which a year later resulted in death. The first attack was treated with iodid of potash, the second attack was not so treated and death resulted. Such a history I think will justify a diagnosis of syphilis of the stomach. Both of these patients were examined for any disease of the central nervous system which might account for the vomiting but there were absolutely no symptoms or physical signs which would justify a suspicion of any of the parasyphilitic affections of the brain or cord.

The third patient, a man 48 years old, had been suffering from epigastric pain, constant nausea and frequent vomiting of food and a thin green liquid for two months prior to the time he came under my observation. The patient was markedly emaciated, very weak, the skin dry and rough; the lips were pale. He was passing a small amount of urine which was free from sugar and albumin. Constant thirst was not relieved by drinking water. On physical examination the only signs which could be elicited were those of a greatly dilated stomach, which extended a hand's breadth below the costal border. Succussion could be distinctly palpated from the lower border of the stomach to the left hypochondrium as high as the eighth rib in the axillary line. The peristaltic action of the stomach was plainly visible and very active.

The stomach-tube was passed and a half pint of thin green liquid free from hydrochloric acid was withdrawn from the stomach, but the patient would not tolerate the tube a sufficient length of time to permit a complete evacuation of the stomach. A conservative estimate would be about a quart of chyme retained in the stomach. There was no tenderness over the stomach and no resistance or tumor palpable in the pyloric region. The patient gave a clear history of syphilitic infection 20 years before, for which he was treated at the time. There has been no recurrence of any syphilitic symptoms since. He has one healthy child 15 years old. His wife has had no miscarriages. There were no signs on physical examination which could arouse any suspicion of an old syphilis besides the stomach symptoms.

The patient was given iodid of potash in doses of five grains *t. i. d.* and increased the dose two drops daily until 25 drops *t. i. d.* were taken. Iodid in these doses was not well tolerated and the dose was reduced to 10 drops, which he took without discomfort. Directly the iodid of potash was administered the patient improved. The diet was restricted to liquids. At the end of a month's treatment solids in small amounts were added to the diet. Improvement was constant until at the expiration of three months the lower border of the stomach was above the umbilicus and the patient was able to take a full diet without discomfort. His color and weight now give all the appearances of perfect health.

A Year's Experience with the Convulsions of Children

BY D. S. HANSON, M. D., CLEVELAND

This paper is written especially with reference to the etiology of the cases observed during a year's time.

When considering convulsions in children the fact must not be lost sight of that the nervous system of children, in many respects, is very different from that of the adult. The lower centers, which include the convulsive centers, both cortical and pontobulbar, are much more highly developed than the higher; consequently nervous control is less perfect, so that, what in the adult would perhaps produce little or no disturbance, might, through reflex or other nerve excitement, produce convulsions in the child.

It is the child with the hereditary neurotic or unstable nervous system, or of acquired nervous instability, that is most prone to fall into the convulsive habit.

Authors quite universally agree that there is an inherited convulsive tendency in some families, and we are all conversant

with the fact, that epilepsy, drunkenness and the various cachexias including rickets and syphilis are very frequently transmitted in the shape of an unstable nervous system, with a tendency to convulsions.

The nervous system of the adult has acquired steadiness from long use of the voluntary centers and by the exercise of the will, a control habit we might properly call it. The child is a bundle of reflexes; his nerves and nerve ganglia are in a state of great and uncontrolled activity, ready to seize upon new impressions, especially if these are of an exciting nature.

The exciting causes of convulsions are mainly of three varieties:

1. Those due to reflex impressions, as teething, intestinal or cutaneous irritation.
2. Those irritating brain and ganglia by general systemic infection by toxins, as in acute febrile diseases.
3. Those producing direct irritation of brain or spinal cord, as brain tumor or abscess, the exudation in meningitis, cerebral hemorrhage, etc.

The convulsions and other grave conditions which may arise in the apparently healthy brain from reflex exciting causes is truly remarkable. Starr reports a case of a healthy nine-months-old child who was given a hearty meal of corn-beef and cabbage which was promptly followed by a convulsion lasting several hours, and this by meningeal hemorrhage and hemiplegia. In my practice an acute paraplegia was completely relieved a few hours after proper attention was given to a long and filthy prepuce.

When we consider the comparative rapidity of brain growth during the first year of life, we are not at a loss to understand why nutritional disturbances during this period predispose to eclampsia.

Children with enlarged thymus are said to be especially liable to convulsions, and, when accompanied by small arteries and general lymphatic hyperplasia, the convulsions are often either fatal or eventually of the epileptic type.

In epileptic convulsions there is said to be an excess of the etherial sulphates in the urine; this does not seem to be true in other forms of eclampsia; why this should have a determining cause on the type of the convulsion, if it does, we are unable to explain. Just what determines the clonic or tonic nature of the convulsive seizure seems also to be imperfectly understood.

Cranial asymmetry, so far as we could determine from exter-

nal examination, due to rickets or other causes, was not so prominent a factor in our cases as we had expected to find it.

The condition of the internal organs during the convulsive seizure is one of intense congestion, and luckily for the child, atheroma and calcareous blood-vessels are conspicuous by their absence.

Since the last meeting of this Society I have observed 19 cases in 14 children. Not all are especially interesting from the etiologic standpoint, quite a number being in no way unusual or greatly different from those usually seen. A classification of causes would place six in the group due to pulmonary irritation, a like number to intestinal irritation, one to cutaneous inflammation, one to meningitis and the remainder to the toxins of acute febrile conditions or causes not determined. The age varied from eight months to eight years, only one being over three and one-half years.

The cases were as follows:

Herbert K., aged 10 months, had had two tonic convulsions during the night, each of short duration. The next morning he had a slight fever and a mild bronchitis. He made a prompt recovery.

Willie S., aged 14 months, had had a short tonic convulsion the day before the rash began to appear in an attack of measles. The latter ran a normal course, but pneumonia developed as a sequel. The patient recovered.

Arthur H., aged two years and eight months, had a temperature of 104° F. at a visit in the morning. The pulse and respiration were both rapid, the ratio being two to one with bronchial breathing over lower right lobe. Later in the day he had quite a severe tonic convulsion; the lung hepatized and the case, excepting severe nervous symptoms, ran a normal course to recovery.

Ella K., aged 14 months, had pneumonia complicating whooping-cough with an extreme temperature and rapid heart action during the last four days of her life, with seven tonic convulsions during the last 12 hours.

Nellie K., aged eight months, was having an attack of whooping-cough complicated with gastroenteritis. The short clonic convulsion which she had was probably due in a measure to both complaints.

Willie B., aged one year nine months, suffered with convulsions similar to the above-described case, due to two factors, pulmonary irritation and fright. The child was reaching above its head for a measure containing kerosene oil and pulled the measure over spilling the contents into his face. Enough of the fluid entered the mouth and nose to strangle the child, who immediately became cyanosed and went into a tonic convulsion which was

repeated several times before my arrival. I found the child semi-comatose, the respiration rapid and difficult, the temperature very high. The child responded well to treatment, but respiration was rapid for two days.

Chas. P., aged two years nine months, was unconscious. The respiration was very irregular, much mucus rattled in the throat, the pupils were dilated, the pulse was regular and not very rapid, and the temperature was subnormal. The child had been having a severe clonic convulsion and was treated by a neighboring physician before my arrival. The spasm had lasted something over one hour. The following day the child was somewhat stupid, but made an uninterrupted recovery. The cause of the convulsion was an evening dinner consisting of wiener sausage and bananas.

Edwin O., aged 14 months, has had 16 attacks of tonic convulsions since his birth. Each convulsion was of short duration and always preceded by a sharp rise of temperature and a few hours of restlessness; an active purge has always given relief; his mother says she thinks she has averted several attacks by giving an enema and a purge early. This case is extremely interesting because it illustrates how easily the convulsive habit can be formed. The family history does not show any especial tendency to nervous disease. Both father and mother came from large healthy families, with the exception of one brother of the father who has rickets. This child is large and well developed with a shapely head and seems normal in every way. He is a gluttonous eater, and this probably is the exciting cause of his convulsions, in the majority of instances at least.

Herald V. was 13 months old. His first attack was tonic in character, lasting but a few minutes; it was over before my arrival; the child had a temperature of 104° F., the lungs were somewhat congested; he had vomited several times; the fever and bronchitis lasted a few days. The attack was probably due to wiener sausage which the child had been eating a few hours before. The second attack occurred about two months later, again tonic in character and of short duration. The mother had weaned the child about a week before this convulsion and for some unaccountable reason he would eat or drink nothing warm, and the convulsion was probably due to digestive derangements from the character of food taken.

George B., aged one year six months, had had two attacks three months apart, clonic in character. These attacks were interesting to me from the extreme difficulty of getting the spasm under control. Chloroform was administered three times, in each instance to full surgical anesthesia, before relaxation remained complete. In each case the child seemed entirely well after a few hours sleep. The mother of the child is an irresponsible person and denied giving the child anything to eat excepting breast milk, but she gave it so little attention that the other children probably gave it anything they happened to have to lunch upon. This child has a small asymmetrical head, rosary on the ribs, and is

not well developed. One brother died at six years from syphilitic stenosis of the bowel, the father is syphilitic and mother's family are nearly all immoral.

Frank M. was eight years of age. This was the fourth or fifth attack, the convulsions lasting in each instance until relieved by chloroform inhalation. This child is of an extremely nervous temperament, is under size, and the head is small and asymmetrical; the family history is negative. Rachitic diathesis is probably the etiologic feature, and indigestion the exciting cause.

Nellie S., aged three and a half years, has a good family history. The convulsions in this case occurred during the latter stage of scarlatina. The latter was not of an especially severe type and was treated by bath at 90° F. and the usual medication for throat, and chloral and the bromids for restlessness. In spite of measures used restlessness could only partially be kept under control. Kernig's sign was present after the third day and after the temperature had become nearly normal she became semi-conscious, the muscles of neck contracted, the eyes crossed, and finally coma and convulsions supervened. The child died on the seventh day: the kidneys were active throughout the illness and the child no doubt died from meningitis.

Emma M., aged two years, had been very extensively burned two days before I was called and was under care of another physician. She was in clonic spasm when I first saw her, and she was only relieved by prolonged effort and extreme narcosis, requiring all the *nerve* a medical man could summon in the heroic measures necessary to use; at last the convulsion subsided, but the child never regained consciousness and died several hours later. The severity of the burn made the case hopeless from the first.

Edna W., aged 11 months, suffered a first attack which was followed by three attacks at 13, 14 and 19 months, respectively, all clonic in character, the first three were of the right side and the fourth of the left side. This child is congenitally blind, the eyes to all appearances being normal. The cause of blindness is due to some brain lesion. She is in constant writhing, swaying motion which at first sight resembles chorea. She is well nourished and of good size having had an abundant supply of mother's milk. The first attack was of the right side and was controlled with inhalation of chloroform, but recurred one or two hours later. It was again gotten under control in the same manner, each time supplemented by chloral enema. This attack was followed by a right hemiplegia (complete of motion and partial of sensation) which subsided so that she was in her usual condition at the end of a week. The second attack was much the same as the first, only the hemiplegia was less well marked and recovery was not so prolonged. The third attack, 20 days later, was much like first two, but, if possible, more difficult to control, and was followed by sharp attack of fever which was relieved by active purge. The fourth attack involved the left side, and the face was

more markedly affected than on previous occasions. A feature developed here which was interesting: the large toe would continue to jerk after the child was thoroughly narcotized and only subsided after chloroform was pushed to the limit; the convulsion would then return upon the withdrawal of chloroform, always beginning in the large toe. This attack was caused by a mild tonsillitis. Of all these attacks none except the last appeared to have any exciting cause, and it will be noticed that different areas of brain were involved, the last time being of the left while first three were of the right side.

The family history in this case is most interesting: the father and mother are apparently healthy, the former works in a brewery and indulges very freely in beer. The father's mother died of cancer; he has two sisters and two brothers, the former are very immoral. The family of the mother is of a low grade of intelligence. There were three children, the oldest was a deaf-mute and died of convulsions at three and one-half years, the second child, who seemed normally developed, died at eight months of convulsions, our present patient was the third and last child. Such a nervous involvement can rarely be traced in a family even in which rickets or syphilis is present, while this family is free from both and all other predisposing causes, barring alcoholism of the father.

A word about treatment and we are through: Holt says a physician called to see a case of convulsions should have with him chloroform, a hypodermic syringe and morphin, a rectal tube or catheter, a syringe and chloral hydrate.

Chloroform inhalation is most reliable but should be supplemented by chloral enema. The initial dose for a child: six months of age, four grains; one year, six grains; two years, eight grains; dissolved in one ounce of warm milk, injected high and repeated in a half hour if necessary.

When the convulsion recurs as soon as the chloroform is withdrawn or chloral is expelled, a hypodermic injection of morphin should be given: at six months, $1/48$ grain; at one year, $1/24$ grain, and at two years, $1/16$ grain; and repeat in a half hour if no effect is observed.

Convulsions due to asphyxia are often best relieved by inhalation of oxygen.

Personally I have not used morphin or oxygen, but believe in selected cases they would be useful, but chloroform and chloral as advocated has served my purpose well, although taxing my will power, in several cases, to the very limit.

Eclampsia and its Treatment

BY MARTIN STAMM, M. D., FREMONT

Various theories have been brought forth in regard to the etiology of eclampsia and of late some valuable new light has been thrown on this subject, but still its real cause has not been fully cleared up, nor can we say that treatment has profited much by the various suggestions and changes of views. It may, however, be well to touch upon the salient points which at present occupy the minds of the pathologist and chemist in the hope that they may lead to the ultimate solution of this important question.

In the earlier times eclampsia was considered an affection of the nervous system, complicating pregnancy, or being caused by the latter. Lever and Frerichs later on suggested its connection with uremia and a little later Spiegelberg maintained that it was due to the presence of carbonate of ammonia in the blood. Chemical analysis, however, did not substantiate this theory. A few years later the Traube-Rosenstein theory, that convulsions are due to anemia and edema of the brain, took possession of the mind of the profession, but soon were proved to be untenable by the results of autopsies. With the advent of bacteriology it could be expected that this would also lead to investigation in its legitimate direction, and today a few authors still cling to the idea that microorganisms may be the cause of convulsions, although such investigations have given so far only negative results. The theory of autointoxication, advanced by Banhard in 1887, and extended to the cause of eclampsia by Riviere in 1898, however, gained greater credence. It was thought that this autointoxication was due to a certain substance circulating in the blood and manifesting itself by an increased amount of toxins there and by a lessened amount in the urine. The work of Chambrelant and Tarnier seemed to give this theory a strong basis and it found its support also in the investigations of Ludwig and Saron. The latter thought that this toxin was the product of incomplete metabolism, especially of the liver. Volkhart, by his experiments in 1897, could not confirm this view. Bouffe de Saint Blaise is still a strong defender of the theory of autointoxication and ascribes it to a functional disturbance of the liver which he calls "hepatotoxemia." If this intoxication is light the patient will only suffer from nausea and headache; in the severer forms we find secondary changes in the kidneys which cause retention of the poison in the system and eventually convulsions. This theory has been

somewhat shaken by some later investigations of Van der Bergh, Forchheimer and Stewart, but I cannot say with what degree of success.

Schmorl thinks that eclampsia is due to thrombosis of certain blood-vessels of various organs, caused by some substance circulating as blood ferment, and he thought it originated in the placenta. Other investigators again failed to confirm these results. Quite recently Kaltenbach and others have advanced the idea that convulsions are due to poisonous metabolic products of the fetus and that in such cases the mother's organism was not adequate to the increased demand of ridding itself of the products of excretion of the fetus in addition to her own refuse matter. This view receives some degree of clinical support by the fact that many cases of eclampsia during pregnancy cease to have convulsions after the death of the fetus. Baron and Castaigne have recently demonstrated that such substances injected into the fetus cease to be carried over to the mother immediately after the death of the fetus. A few cases are also reported in which the children of eclamptic mothers died of convulsions shortly after delivery, and a number of investigators have found in the liver and kidneys of the fetus changes similar to those organs of the mother. Dienst gives the pathologic findings of three children which he had an opportunity to examine postmortem. The mother in one case had a convulsion at the time of expulsion of the child. Immediately after delivery the child had a similar attack, 38 minutes later another attack followed and 50 minutes later another one when the child died. Postmortem examination, about three-quarters of an hour later, revealed severe congestion of the veins and capillaries of the various organs, so to say a universal thrombosis, cloudy swelling, fatty degeneration, anemic and hemorrhagic necrosis of the parenchyma, of the heart and liver and similar grave changes of the kidneys. The second child which died, after cesarean section performed on a moribund mother, showed similar changes in the kidneys where the *tubuli uriniferi* were filled with hyalin casts. The urine taken from the bladder of the fetus showed 1% of albumin, the sediment contained numerous red blood-corpuscles, a few leukocytes, quantities of epithelium, all kinds of cylinders, hyalin, granular, epithelial and blood casts. The heart showed, besides cloudy swelling of the musculature, a necrosed spot of the size of a hempseed, the microscope traced its cause to thrombosis of a branch of the coronary artery, other organs showed signs of hemorrhage. The third child showed similar changes in the liver and kidneys. Dienst thinks he has

sufficient reason to assume that these changes took place during the lifetime of the fetus. He furthermore found that in children of eclamptic mothers the quantity of fibrin was increased, the same condition, only more pronounced, was found in the mother. In those cases which died the amount was increased tenfold.

The present theory is that fibrin is formed by the action of thrombin or fibrin ferment upon fibrinogen. This thrombin does not exist in a preformed state in the blood, but is produced by the action of certain substances entering the blood and forming a chemical union with prothrombin, which latter is found in a preformed state in the blood as the product of leukocytes or blood plaques. It is still an open question whether the fibrin ferment or the fibrinogen is abnormally increased in the eclamptic state, but in three cases Dienst has noticed a pronounced hyperleukocytosis in the mother's blood. The supposition that eclampsia toxins are albuminous bodies finds some support in the cryoscopy of the blood. The fact that some children have convulsions several hours after confinement would make it probable that the source of poison may be found in the fetus. Kreutzmann reports a case in which the mother suffered from grave albuminuria, but not from eclampsia. The child, however, had several typical eclamptic attacks, the first one occurring 36 hours after birth. Dienst thinks that the lessened power of elimination of the fetal poisonous products on the part of the excretory apparatus of the mother is the main cause of eclampsia; in fact, Winkler has found that two-thirds of all the cases of eclampsia give evidence of former inflammatory conditions of the kidneys following measles, scarlet fever and diphtheria. Acute nephritis during pregnancy, due to cold, may explain epidemics of eclampsia. Insufficient excretion of urine, due to compression of the ureters, may also produce such an acute alteration of the kidneys as to predispose to convulsions. Dilatation of the ureters has been observed to produce eclampsia in protracted cases of labor. Affections of the heart may lead to insufficiency of the kidneys and have been found in connection with eclampsia.

Schmorl had a primipara, 18 years old, who died after 15 convulsions. No albuminuria existed at the time and autopsy revealed the kidneys intact; the liver, however, showed a number of necrosed foci. Nothing was said of the heart until Dienst wrote to Schmorl in regard to it and received the answer that microscopic examination had revealed deep changes of that organ amounting even to fatty degeneration of the myocardium. Ebinger reports the observation of 28 cases of eclampsia at the clinic of

Kiel, where 14.3% could be traced to chlorosis and we know that Virchow considered imperfect development of the heart and blood-vessels as the basis of chlorosis. Organic affections of the heart, or hearts weakened by constitutional diseases, also furnish a predisposition to eclampsia, since the eliminative power of the system thereby becomes diminished. Another strong factor in the cause of eclampsia should be considered, which is, that the fetal metabolic products are carried directly through the umbilical arteries into the placenta and finally into the hypogastric veins, vena cava and general circulation of the mother. The disposal of these products generated in the mother is different since they are first filtered and clarified through the liver before they enter the general circulation. These fetal toxins act as a genuine blood poison and injure the maternal organism, especially the excretory organs, leading to albuminuria gravidarum and to all those pathologic changes generally found in other poisoning cases, such as cloudy swelling and fatty parenchymatous degeneration of the organs involved. The hyperleukocytosis in eclampsia also leads to the conclusion that these poisons have a leukotactic tendency or property. It also stands to reason that when leukocytes are manufactured so rapidly and in such abundance they have less resistance and decay readily, so that they may indirectly contribute to the formation of fibrin ferment and in that way to extensive thrombosis. The latter condition then readily explains the occurrence of multiple hemorrhagic and anemic necrosis of the liver and other organs.

It is to be expected that this eclamptic poison will also react upon the fetus. The eclamptic attack may be looked upon as a symptom of the action of these specific toxins. They, no doubt, irritate the vasoconstrictors and in that way increase the arterial pressure (Wiesner). The vascular spasm may explain some clinical and postmortem findings, *i. e.*, the detachment of the endothelium of the intima, the laceration of the blood-vessels and hemorrhagic exudations into the tissues as well as the apoplectic conditions, such conditions again would produce coagulation in the affected districts and especially thrombosis where the quantity of fibrin in the blood is increased. Oliguria and anuria existing at the time of eclampsia can also be explained by such conditions, since we know that the quantity of urine is not only dependent upon the hydrostatic pressure, but also upon the activity of cells investing the glomeruli. It is not so easy, however, to explain postpartum convulsions after the main source of poisoning has been removed. We then can only assume that

the secretory apparatus has been so much damaged and the fetal toxins have affected other organs to such a degree as to produce serious alteration of the metabolism. But how shall we explain the type of eclampsia without albuminuria? Dienst thinks that in such cases the lack of elimination is more of a secondary nature, due to insufficiency of the heart, and that the retention of fetal toxins would affect the liver to a greater extent than the kidneys. In case of sudden insufficiency of the heart combined with severe venous stasis in the liver and the multiplied anastomosis which the liver capillaries have between themselves and the blood-vessels of the neighboring organs, in contradistinction to those of the kidneys, a larger quantity of the fetal products will flow at a given time through the liver capillaries than through the parenchyma of the kidneys. The system may become so overflooded with the toxins that the liver and general metabolism become severely damaged before the kidneys are involved or respond to such insults with albuminuria. Some experiments upon animals seem to support the theory of Dienst.

Treatment should in the first instance consist in the prevention of convulsions and some authors claim to have had good success in this direction. The heart and eliminative organs should receive special attention. A suggestion made by Dienst is deserving of some consideration. He claims that with the decrease of the alkalescence of the blood the lower oxidation products of the metabolism increase, whereas if the blood is in an alkaline state the oxidized bodies appear as finer molecules and are more soluble. In that case the osmotic pressure is heightened which would favor the excretion of urine materially. He claims to have derived benefit from a solution of bicarbonate of soda in the shape of drink or clysmas and injects this into the stomach through the tube in case the patient is in a comatose condition. In cases in which the heart is weak he gives caffeine with benzoate of soda and recommends a milk diet. For the treatment of convulsions morphine, chloral, chloroform, and hot baths have probably found more application than other remedies. Ricketts and Bonifield, of Cincinnati, claim specially favorable results from veratrum viride and some European authors also have of late lauded its value, whereas Bacon states that in America there are as many against as for this drug. In my hands venesection has done better than any other method short of prompt delivery. With all the above measures, however, there has been no change in the mortality of the mothers, it still varies between 20 and 25%. I do not know whether the latest theory, of the fetus

being the source of eclampsia, has influenced the mind of the profession and dictated some other method of treatment, but it seems that there is a growing tendency among our best accoucheurs to advocate delivery as promptly as possible after the appearance of convulsions, and it appears that by this measure the mortality has been materially lessened. Bumm reports two deaths out of 25 cases (8%). Should the cervix be dilated instrumental delivery or version is indicated. In cases in which the cervix is not obliterated or there is absence of pain either forcible dilatation with the fingers, metreurynter or metal dilators (Bossis') will find their use, especially when the case is in the country. Where, however, necessary facilities are readily obtained vaginal cesarean section, as introduced by Dührssen, of Berlin, will, as far as we can see, give the best results, since the child can be delivered in five to seven minutes. There are probably not more than 25 cases on record in which this method has been used for eclampsia, but from all appearances the mortality of the mothers has been very small and will, no doubt, be smaller still if prompt delivery proves as valuable as many consider it to be. Conditions such as a very narrow pelvis or an immovable cancerous uterus will always call for abdominal cesarean section, but I venture to predict greater usefulness for vaginal cesarean section in this field. As this operation has not before been done in this country it may be of interest to report the following two cases from my practice:

Case I: Mrs J. B., Bellevue, Ohio, aged about 35 years, had four children. On April 22, 1903, at her seventh month of pregnancy, she began to have convulsions at 8 o'clock p. m. and had about seven attacks before I saw her the next morning at 9 o'clock, with Drs Richards and Harding. She had been comatose since midnight, the temperature was 101°, the pulse 95 per minute; she vomited several times, the bowels moved three times. The cervix admitted the little finger, but an attempt at further dilatation with instruments proved futile or, at least, would have been too slow. Two fatal cases in my practice gave me the conviction that more rapid delivery might have given better results. While we were preparing for the operation, at the home of the patient, she had another convulsion. The posterior portion presented more favorably than the anterior and, owing to the surroundings and scant assistance, I thought I would follow the way which seemed the easiest for me under the circumstances. On that ground I made my deepest incision into the posterior portion (about four and one-half inches long) and then a more shallow one into the anterior with the knife. Hemorrhage was not profuse, as I at once introduced my hand into the uterus and made version. There was a little delay in getting the head of the child

through the vaginal outlet, but the whole procedure occupied only about six minutes; the placenta was removed a few minutes later by pressure and an iodoform gauze tampon was introduced into the uterine cavity. The incisions were stitched up with cat-gut sutures and the whole operation was done in about 25 minutes. The patient rallied in a few hours; the child lived about one-half hour. I saw the patient about two months later and she was in perfect health. A small portion of the posterior incision had not yet united; urine was free from albumin.

Case II: Mrs F. S., age 25 years, primipara, pregnant eight months, complained of headache for a few days. On September 6, 1903, at 4 o'clock p. m. she began to have convulsions and had about five before I saw her with Dr Stierwalt, at 8 p. m. The doctor had given her one-half grain of morphin a short time before. She was in a deep stupor, but could be aroused for a few minutes. The head was down in the pelvis, pushing before it the anterior portion of the womb, the cervix was partially obliterated and would admit two fingers. She had no pains; the temperature was 98.4°, the pulse 114 per minute; the urine was thick with albumin; it was like a boiled egg. As I did not wish to operate in the country and by lamplight if it could possibly be postponed, we concluded to wait until daylight and to give morphin or chloral in case of necessity. She was brought to the hospital about 6:30 o'clock the next morning and had in all about eight convulsions, was cyanotic, the tongue was bleeding, was dark and covered with dry crusts; there was some puffiness about her eyelids. The operation was begun at 7 o'clock. Owing to her comatose condition no anesthetic was required: the anterior incision was made about three inches long, the bladder was pushed up further, but as the tissues seemed so brittle I thought it best to make also a posterior incision about four and a half inches long. This admitted my hand so that version could be made readily. The child was delivered in about seven minutes. It made a few gasps, but did not revive. Hemorrhage was not severe; the placenta was removed five minutes later by pressure. The operation lasted a little over one-half hour. Four cat-gut sutures united the anterior incision and six the posterior. There was a shallow tear of the perineum which extended also through the wall of the vagina, nearly up to the parametrium; this was united by continuous cat-gut suture. Salt solution and camphorated oil were injected, the pulse was 110 per minute, and the temperature was normal. Consciousness returned sometime about 6 o'clock p. m. the day of the operation. Esbach's albuminometer showed about 10 grams of albumin after an equal quantity of water had been added to the urine, the next day it went down to one-half gram. She is now in very good health, and on July 15, 1904, gave birth to a child seven and a half months old, which is still living.

Paranoia

BY E. C. BROWN, M. D., MASSILLON.

The mental disease commonly called paranoia is also known by the terms *verrücktheit*, *primae verrücktheit*, chronic delusional insanity, *deleriants chronique*, reasoning mania, systematized delusional insanity, *folie systemie*.

The name paranoia is derived from the Greek word "paranoia" meaning "to think beside or beyond," or, in other words, a derangement, a madness; it was a classic term denoting insanity, and in this general sense was used by some of the best Greek authors, such as Eschylus, Arrianus, Plato, Aristotle, Lucianus and Plutarch. It does not seem to have been used again until it was employed by Vogel in 1764 as a collective name for some nine different forms of mental derangement. In 1818 Heinroth also made use of it to denote certain secondary states of exaltation with fixed delusions and exaggerated feelings of personality. Mendal, in 1881, seems to have been the first to use the word in its modern meaning, which was evolved from the observation of the French, German and Italian alienists. From these arose one of the most interesting and critical discussions of modern psychiatry. Esquirol noted a class of the insane with ideas of grandeur to which he applied the term "monomania." Greisinger, in 1845, next described the combined or successive delusions of persecution and grandeur. In 1852 Morel detected what he termed the systematization. With this the picture of the disease was drawn in its essentials, so that the discussions from the days of Morel to the present time have waged around the important, but relatively subsidiary queries as to whether the malady is hereditary or nonhereditary; acute or chronic; primary or secondary to preexisting insanities.

The result or outcome of these contentions has been to give the name paranoia an almost definite meaning, and marks a great stride in the advancement of psychiatry. Today we are no longer confused as to its meaning, but look upon the term as one denoting a chronic progressive psychosis, occurring mostly in early adult life, characterized by the gradual development of a stable, progressive system of delusions, without marked mental deterioration, clouding of consciousness, or involvement of the coherence of thought. It is always primary. Little is known as to the pathology of the disease under consideration. The disorder is

purely a functional one. No pathologic changes have been found in the brains of paranoics. Berkley mentions that the most striking pathologic signs encountered by him are the abnormal topography of the cervical cortex, the intersection of sulci and malposition of convolutions. These, however, I am inclined to look upon as belonging to the category of the stigmata of degeneration.

The disease is not a common one, embracing only a very small percentage, namely 2 to 4% of the cases admitted to hospitals for the insane. Men seem to be more often affected than women, and usually the disease begins to be plainly manifest between the ages of 25 and 40 years. It develops on a defective, constitutional basis, either congenital or acquired, defective heredity existing in a very large percentage of cases. Exciting causes very often form the starting point of the psychosis, such as an acute illness, excessive mental stress, shock, business reverses, deprivation and disappointment.

The development of the psychosis is very gradual, extending sometimes over years, and is usually so insidious that the disease is in existence long before it is recognized. Indeed many paranoics live quietly, and as the honored members of the community, being sometimes noted for their brilliancy of intellect and success in their various avocations. Of course no one will deny the peculiar traits connected with the individual, but their true significance never dawns upon the friends until perhaps the occurrence of a catastrophe in the course of their conduct. Such examples are furnished in the lives of such men as Prendergast, Guiteau, Mahomet, Jeanne d'Arc, and others. The mental endowment of these persons in intellect, memory and judgment was excellent save in the direction of their single cluster of delusions. When, however, their lives are considered in a large way their irresponsibility is plainly seen. Time and space will not allow our entering into an enumeration and description of the lives and characteristics of many other noted personages of history who were the victims of this disease, but it will be my endeavor to point out the characteristic traits and mental symptoms of this class of the insane, illustrating their clinical history by citing incidents which occurred in a few cases which have daily come under my observation at the Massillon State Hospital.

Case I: I first desire to call your attention to the case of Mr I. S. His maternal grandfather was insane, it is believed he was a paranoic, and committed suicide to escape his persecutors. His father is living and very eccentric; his mother is living

and well. A maternal cousin is insane. A few hours before his birth, news was transmitted to his mother that his grandfather had committed suicide. The patient suffered from a number of the diseases of childhood. He attended school until 12 years of age, and subsequently secured a position on a farm. The patient has always been shy and seclusive. He has been accustomed to take long walks by himself and enjoy the solitude of his own thoughts. Being reserved he had a certain amount of self-esteem, displaying various little traits and peculiarities. When in company he would try to make associates believe he knew it all. He was usually very industrious, but after occasional spells of anger and excitement he would become lazy with a tendency to contention, for which he was properly termed by friend and fellow-workmen a "crank." These conditions became more pronounced following a head injury, and shortly afterward he was admitted here. His present illness can be traced to his twenty-second year, when he began to think people were following him, that they were talking about him in his own home. He began to have funny, creepy sensations over his entire body. After eating he would feel nauseated, attempt to vomit, and would feel dozey. He thought some one was drugging him, and began to investigate. About this time he had several pimples on his body, and one day while passing the grocery store he overheard the remark, "The heredity is showing itself in his person; it's plain he is an inebriate." Upon closer investigation he found out that it was the clerk following the groceryman's orders who was injecting a drug into his eatables, and he was further convinced of this when he accosted the man about it, and the man laughed it off as a joke, and said, "You must be crazy to think of any such thing." When he was leaving the store he heard the groceryman's daughter say, in a whisper, "My God, is he only finding it out now?" His suspicions were further aroused, and he refused to eat anything which came from that store. He held aloof from this man, telling numbers of people about it, and becoming rude and impertinent when they would not become interested. He returned some chewing tobacco to a dealer one day and said it was drugged. The dealer laughed and winked at several bystanders, and his suspicions arose. He noticed fellow-workmen growing cold toward him, and talking and laughing about him. He refused to drink the water in the shop where he worked. Although imagining that people doped his liquor when he drank in a saloon, he did so to study the liquor question. He won out in a fight against the saloon element, and derived great honor from this, although being very modest said he did not wish his picture to appear in the paper. This drugging he considered more or less detrimental, and consulted several physicians from whom he received very peculiar medicine. He grew suspicious of each in turn and refused to take it. One physician suggested hypnotism as a remedial agent, and when he refused the Doctor said, "Well I'll get you by the drug route, you fool." He told the last physician whom he consulted of his experiences, and accepted

medicine from his hands. This poisoned him and caused him to lose his sexual power, and produced a deep ulceration on his thigh. The supposed attempts of physicians to poison him were widely published, and he sought the redress of his grievances in the courts, but this resulted in his commitment to the Massillon State Hospital. He was admitted in January, 1903. The patient is egotistic and pompous, and relates his former achievements with a grand air. He states that he is a social favorite. He tells how he advertised his enemies, and, finally not succeeding, resorted to the courts. He states that the judge was bribed to send him here. He has a decisive manner, is self-esteeming and has abnormal ideas of personality. He would have the doctor wait on him, expects to be helped with his overcoat, and to pass through the doorway first. He is suspicious of people overhearing what he tells the doctor, has no friend whom he would take into confidence, not even the little birds, which, he says, often sing for him. He imagines a number of people at the institution are opposing him because of his superiority.

Case II: Mrs L. C. Nothing of importance is known of her early life. She states that she has always had her peculiarities. She was morbidly shy, peculiar, eccentric, avoided the companionship of others, and was prone to withdraw herself into the solitude of her own thoughts. The physiologic commotion of puberty and adolescence, with its inflow into consciousness of innumerable new sensations, its flood of new instincts, powers, ambitions and ideas, tended to intensify the morbid proclivities already evident. She became grumbling and suspicious, daily mental and manual labor became distasteful. Her home surroundings and friends became less attractive. Trivial acts and manners of friends were misconstrued and regarded with suspicion. She became independent, speaking only to a few people, often being rude and discourteous. She married in 1881, and a couple of years later left her husband. Ever since she has been pursued by what she calls the black man, a man who came to the train with her husband to persuade her to remain. She has traveled to many cities all over the country to escape her persecutors. Her delusions are based and well systematized, and her environments are woven into the chain. When she was sick she said the doctor was trying to poison her and had accepted a bribe.

She was constantly kept under a spell by the "black man." Her sickness grew worse, and she was sent to the infirmary, and later taken to the Columbus State Hospital, and afterward was removed to this institution. Trivial matters which the patient formerly would not have heeded are now falsely and absurdly interpreted and enter into the structure of her delusions. A spot on her coat, a calloused finger, a decayed tooth, or headache, are regarded as positive proof of treachery, and an effort to get her out of the way by a slow process of poisoning. A visitor gave her an orange and she, observing some brown spots on it, immediately concluded that some poison had been injected into it, and refused to eat. The visitor was an agent of her husband, and

the "black man." She states that the nurse gives her hypodermics while she sleeps, is jealous, and is working with her husband.

Case III: Mr K. has well systematized delusions and has passed into the expansive stage. He is the greatest of living detectives, and gives in detail his grand achievements.

Case IV: Mr G. R., is of an erotic type, and imagines a certain lady is enamored of him, that she follows him and throws out inducements. He approached her one day and was threatened by her husband. The patient had the husband arrested and the trial resulted in the commitment of the patient to the Cleveland State Hospital. He thought this a neat move to get him out of the way. Four months later he returned home. Shortly after he began to imagine his neighbors' wives were offering inducements. The physician, who examined him at the time of his commitment, was woven into the chain of delusions, and Mr R. stated that he wished to get even with him for having incarcerated him. He shot at the physician on the street one day, which incident resulted in his second commitment to the Cleveland State Hospital. Later he was transferred to Massillon. The patient has numerous other delusions of persecution pertaining to present environment, all of which are well systematized.

In the study of these cases we find the cardinal points which render the diagnosis of paranoia comparatively easy. To summarize and give an explanation I may add that because of these delusions they become very unstable in their employment, and may travel all over the country in the vain hope of escaping their supposed enemies, who constantly follow and arise before them. They become morbidly sensitive, and view items in the newspaper as indicating some intrigue, posters as containing hints, and some daily passer-by is always lighting his cigar when near them, etc. Any doubt as to an evident purpose in all this is sooner or later dispelled by remarks accidentally overheard. In this way false interpretations gradually assume greater prominence, and the resultant persecutory delusions are constantly increased and aggravated. These delusions of persecution sooner or later become expansive, and are systematized, built upon and moulded into a coherent train of reasoning. Some patients find the cause of their persecution in property which they possess, others attribute it to their personal charms, while others imagine they are of noble birth. There is usually a feeling of self-importance. A change of personality may result and the patient announces himself as titled, or the direct descendant of Christ. Patients become aware of this by having received a salutation from the nobility; the orchestra begins to play as they enter the theatre, birds chirp as they pass, and the sun coming from behind the clouds and

casting its rays upon them is an indication that they are under the special guidance of the Almighty. Another feature of the systematization of delusions is the appearance of retrospective falsification of memory. By this I mean a looking back over their past life and the misconstruction of occurrences. They review their past life and now see plainly on every hand evidences of persecution, and detect occurrences which, at the time, should have indicated their superiority. The thought of the loss of a situation many years ago, derisive remarks by fellow-workmen, or an injury, now becomes clear evidence of persecution by enemies, and aids in fortifying their system of delusions. Hallucinations are always present at some time, but do not play a very important part in the psychosis, they rarely persist through the whole course of the disease. While these may be of any of the special senses, those of general sensibility are quite frequent. During their life memory and judgment are well retained except as they are biased by the delusions. Their emotional attitude is governed by delusions. They may be irritable, shy, excitable; they are sometimes despondent. All sooner or later become arrogant, proud and dogmatic. Their conduct appears quite normal for a while, but they soon become attractive because of their eccentricities, peculiarities in dress, oddities in manner, religious zeal or attitude of self-importance. They soon become very unstable in their behavior and mode of employment, and make many changes in situation and location in the vain hope of escaping their persecutors. In reaction to their delusions they may endeavor to call public attention to their persecutors by letters written to authorities, or to the press. They may apply to the police for protection, or assume the offensive, and take the matter of vengeance in their own hands. Not infrequently the first striking evidence of the disease is a murderous assault upon a supposed enemy, as in the case of Mr G. R. given above. Paranoia is for this reason the most dangerous of the insanities. Cases of paranoia are usually of some duration before recognition. The course is slowly progressive with gradual evolution of the delusions, which are constantly being further systematized and made to encompass new environments. According to some psychiatrists the disease presents definite periods according to the stages of evolution of the delusions. The period of subjective analysis, or the prolonged period of insidious onset, is followed by the persecutory period with the development of delusions of persecution, with hallucinations; and, finally, the ambitious period accompanied by a change of personality. The patients are usually quiet and orderly, present

an unclouded consciousness, and for many years are capable of considerable labor, both mental and manual. After many years they may show a moderate degree of mental weakness. They become unable to apply themselves and take less notice of their environment and less care of themselves. In some cases the disease may seem to be at a standstill for many years, in others partial remissions occur, and the patients are for a time able to be at home but rarely in condition to resume their accustomed occupation.

The diagnosis is usually quite plain. The distinction between of the paranoid forms of dementia praecox, and pure paranoia depends upon the lack of system and the rapid development of fantastic delusions commencing with hallucinations. The delusions of dementia praecox change beyond all reason, and do not harmonize with their past life. The delusions of paranoia proper are slow in appearing, and are well systematized and confined to morbid interpretations of real events, are woven into a coherent whole, gradually becoming extended to include even recent events, contradictions and objections are apprehended and explained. The most striking diagnostic symptom to distinguish between the two is the mental deterioration which is exceedingly well marked in cases of paranoid dementia. Besides these points of difference we are able to recognize in some cases catatonic symptoms, clouding of consciousness and gross incoherence of thought. The emotional attitude of paranoid dementia shows clear and marked changes, depression or silly elation. In paranoia the emotional attitude is uniformly natural, the demeanor is almost normal. The prognosis of paranoia is poor, as no genuine case ever recovers.

A Correction

In the August number of the JOURNAL there appeared an abstract of a paper read by Dr L. Emmet Holt before the Section on Pediatrics at the last meeting of the American Medical Association. This abstract was taken from the *New York and Philadelphia Medical Journal*. Through typographic error the title of this abstract was so printed as to give the impression, unless the name of the Journal from which it was taken was seen, that it was an original article, an impression which we in no sense wished to convey.

TREASURY DEPARTMENT,
Bureau of
Public Health and Marine Hospital Service,
Washington, D. C., June 29, 1904.

A board of officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, 3 B street, S. E., Washington, D. C., Monday, October 3, 1904, at 10 o'clock, a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: 1. Physical. 2, Oral. 3, Written. 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital and, when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco.

After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade.

Assistant surgeons receive sixteen hundred dollars; passed assistant surgeons, two thousand dollars, and surgeons, twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty and fifty dollars a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, ten percentum in addition to the regular salary for every five years' service up to forty percentum after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the board of examiners, address

Surgeon-General,
Public Health and Marine Hospital Service,
Washington, D. C.

The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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EDITORIAL

The National Association for the Study and Prevention of Tuberculosis

It is gratifying to be able to record the successful organization of a National Association for the study and prevention of tuberculosis at the meeting of the American Medical Association in June, at Atlantic City. Although long deferred this organization is none the less welcome, and it is to be hoped that the interest and enthusiasm aroused through its agency may be productive of large results. The objects of this organization are, briefly, (a) the study of tuberculosis in all its forms and relations; (b) the dissemination of knowledge about the causes, treatment and prevention of tuberculosis; (c) the encouragement of the prevention and scientific treatment of tuberculosis.

The officers and directors of this Association represent pre-eminently our foremost students of this question, and no more fitting tribute could be paid to Dr Edmond L. Trudeau, of Saranac Lake, than his election as the first president of the Association. Drs William Osler, of Baltimore, and Hermann M. Biggs, of New York, were chosen vicepresidents; Dr George M. Sternberg, of

Washington, is the treasurer and Dr Henry Barton Jacobs, of Baltimore, is the secretary of the Association. In the list of names on the Board of Directors the following, known everywhere for their indefatigable labors against this scourge, are noted: Dr Norman Bridge, of California; Dr Arnold E. Klebs, of Illinois; Dr William H. Welch and Dr John S. Fulton, of Maryland; Dr Vincent T. Bowditch, of Massachusetts; Dr S. A. Knopf, of New York; Dr Mazyk P. Ravenel, of Pennsylvania, and Dr M. M. Smith, of Texas.

With the development of this organization it will, doubtless, prove itself an important factor in making known to the profession and public the important advances which have been made in the past decade in the study and control of tuberculosis, and with an awakened public opinion on this subject we shall finally secure results in some measure commensurate with the efforts which have hitherto been put forth with so little effect by many individuals. Such strides have been made in the past decade in the recognition of the importance of the study and control of tuberculosis that we may confidently look for a decided improvement in all the conditions which predispose to this malady.

We have noted elsewhere in this number of the JOURNAL the movement so recently inaugurated in Cleveland by the establishment of a tuberculosis dispensary, a movement which means not only a careful and systematic watchfulness of all cases of tuberculosis with a view to prevention of subsequent infection and cure when possible, but must carry with it an immense commercial saving to manufacturers and manufacturing plants through the interest aroused in the well-being of the employees.

Seventeenth Annual Report of the State Board of Health

We have to acknowledge the receipt of the Seventeenth Annual Report of the State Board of Health covering the 12 months from January 1 to December 31, 1902. This very exhaustive report by the State Board contains an immense amount of valuable data bearing upon every point of public health and sanitation of importance to the citizens and municipalities of Ohio. Although the data and facts given are necessarily at the present time largely a matter of past record, there are a number of interesting facts brought out which it is well to bear in mind, and a brief review of some of these which may appear as ancient history may be a profitable source of reflection and even of congratulations.

From this Report we learn that during the year 1902 the total sum of money expended by the Board of Health of Cleveland was \$321,459.00; of this amount \$200,628.46 was spent in one way or another on account of smallpox. In 1902 Cleveland employed 20 sanitary policemen; at the present time we have 22 only 15 of whom, however, are available for outside work. In this connection it should be noted that Cincinnati in 1902 employed 26 sanitary policemen, the total number of infectious diseases reported for this year in the latter city being 4,786, as against a total of 6,961 reported in Cleveland during the same period. During 1902 just 56,558 "nuisances" were reported to the local Board of Health, the nature of which is, however, in no way specified, and there is no report given as to the number abated during this period.

These figures are in themselves tremendously suggestive and indicate in a crude way the vast number of problems which must constantly confront our local Board of Health, and the immense amount of money necessary to maintain the campaign against conditions inimical to health. We must not forget, however, that 1902 was the year of our smallpox epidemic, and this report does not fail to give due praise to our Health Officer, Dr Friedrich, "for having so vigorously enforced vaccination when it was once begun." We quote further from this report (page 9): "The lesson of Cleveland's smallpox should be—do not wait until the enemy is within the gates. Vaccinate in advance and an epidemic of smallpox will be impossible." Surely our \$200,628.46 lesson should not soon be forgotten.

Contract Medical Practice

In the August number of our esteemed contemporary, the *St. Paul Medical Journal*, there appears a very timely and strong editorial against contract medical practice, a system of practice which seems to have crept into almost every branch of medical and surgical work during the past five years. The abuse discussed in the editorial in question is one of far-reaching consequences, and the deplorable conditions which confront medical men in Germany and England, as a result of the development of contract practice in those countries, should warn the profession as an organized body to determine at once whether it can countenance the development of similar methods of practice in this country. Under existing conditions it is possible in a large number of trade benefit organizations for every member, from the highly-

salaried executive officer down to the ordinary mechanic, to secure, in case of illness, for a moderate annual fee paid into the treasury of the benefit organization, the services of professional men of large experience. In return for this service the physician receives a fixed annual stipend. That, under certain conditions, especially among the laboring classes, a mutual sick benefit association may protect the individual against serious emergencies is not to be denied, and in instances in which the professional services are compensated for by a definite fee, varying with the nature of the services rendered, no just criticism can be offered. It is, however, more particularly against the sort of contract medical practice alluded to above that our energies should be directed, and no stone should be left unturned in an endeavor to bring about some action by our National and State Associations covering this point. When the condition of affairs is reached that makes it possible and obligatory for a trained specialist to give his services in this way for an average of less than 20 cents an office visit, as is the case under certain contracts, it is indeed time that something should be done to abolish beneficial associations of this character.

Another really serious form of contract medical practice, and one which is in our judgment quite as far-reaching, is the custom at present largely in vogue in certain cities. A definite annual contract is entered into between a trade corporation and a hospital under the terms of which the hospital agrees to take care of any and all cases which may occur among the said firm's employes, whether of a surgical or medical character, the hospital to be paid the same contract fee paid by the accident association to the outside physician or surgeon. This system is none other than a contract medical practice on the part of a charitable institution in competition with individual members of the profession.

It is to be hoped that the agitation for reform along these lines so earnestly and consistently maintained by the *St. Paul Medical Journal* may be productive of much good.

Fourth of July Accidents

The usual aftermath of deaths and injuries resulting from the Fourth of July celebration was duly recorded by the daily papers last month. The *Chicago Tribune* of July 6 gives a total number of 52 killed and 3,049 injured in the United States. The actual figures are undoubtedly greatly in excess of this number as many accidents escaped the notice of the newspapers. Cleveland contributed her share, but fortunately the resulting deaths from

tetanus show a notable decrease from last year's figures. During July, 1903, there were 14 deaths from tetanus, most of which were due to Fourth of July accidents. In July, 1904, however, but five deaths from tetanus were reported to the health office, and only two of them could be traced to injuries sustained on the Fourth. This may probably be explained by the fact that greater care was given to these injuries this year and also, in a less degree, to the wider use of antitetanic serum as a prophylactic agent.

The belated action of the City Council a few days prior to the Fourth prohibiting the sale of toy pistols and blank cartridges was met by the objection that the dealers had already laid in a supply and would sustain considerable loss if the sale of such wares was prohibited. Cartridges were certainly in evidence on our national holiday, and one large hardware firm in the downtown district prominently displayed the advertisement "Blanks for the Fourth."

It is to be hoped that another year this legislation will prove effectual, and that the dealers will then have no valid excuse for laying in a stock of these death-dealing cartridges.

The torpedo cane of a year ago was comparatively harmless, but a very efficient noise producer. The new magazine canes, however, have proved very dangerous and a number of severe accidents were due to the explosion of the magazine. It would, therefore, seem advisable to put them under the ban.

The action of the police in limiting the celebration to the Fourth itself was fairly effective, and very gratifying, so far as it went. It is a pity, however, that their powers are so limited even upon this day. An incident that occurred in Cleveland illustrates the selfishness of some people. Upon the opposite side of the street from one of the large hospitals of this city, the residents were celebrating the holiday by a continuous and deafening fusillade. They were requested to desist, as a number of the patients were greatly disturbed, but they refused, and when an appeal was made to the police they claimed they were powerless to interfere so long as the fireworks were not exploded upon the streets.

We have recently had a romping day for the children in the parks. Similar sane celebrations proved very satisfactory last Fourth in various places, sports taking the place of fire crackers. Why can not a similar plan be carried out on the next Fourth of July?

The Tuberculosis Dispensary

Plans for a dispensary designed exclusively for the treatment of patients with tuberculosis have been under way in Cleveland for some months. Several locations have been considered but arrangements are now about completed for the early opening of the dispensary in the Western Reserve Medical School building, using rooms formerly occupied by the general dispensary of that institution. In the past four years the dispensary idea in the management of tuberculosis has made great progress on the continent, particularly in France, and it has been found possible to accomplish through it the registration of the tuberculous poor, visitation and inspection of their dwellings and shops, and aid when that is needed. Registration, inspection and aid when required are the special features of the plans which have been mapped out for the local dispensary which receive our heartiest commendation. Both sanatoria and dispensaries abroad enter very actively into the antituberculosis campaign which is being carried on in those countries with great enthusiasm, and while the Cleveland dispensary will not have the honor of being the first dispensary for tuberculosis in this country it will undoubtedly be the first systematic attempt to make the dispensary an active participant in this campaign. The treatment of the individual patient and the maintenance of a register of the tuberculous will be directly undertaken by the dispensary; the remaining features of the plan will not be worked out by the dispensary directly but will rather be guided and made possible by it. The Visiting Nurses' Association has already a nurse who is devoting her entire time to this work, and who will continue to do so under the direction of the dispensary. In case it becomes necessary to render assistance to any patient of the dispensary it is hoped that it will be possible to introduce a third agency into the campaign in the Associated Charities, which has already done much for these people. If so a thorough study of conditions will be made by trained and sympathetic investigators under the direction of the Secretary of that organization, Mr Jackson, who has exceptional experience in work of this kind, and the necessary assistance will be secured in such ways as not to pauperize the patient or his family. It has been found a very easy matter to secure patients for such a dispensary as this, and each patient seems to constitute himself a committee of one to teach proper methods of prophylaxis, and to preach the gospel of fresh air, good food and proper hygiene in general. The dispensary hopes to maintain such close relations with the general dispen-

saries of the city that these may, for the sake of removing sources of danger to other patients and to the physicians and attendants in charge, be glad to refer patients with tuberculosis to the special dispensary. The undertaking deserves our sincerest approbation.

The July Mortality from Typhoid Fever

As shown in the August number of this JOURNAL the July mortality from typhoid fever in Cleveland for 11 years (1892-1902) averaged 3.4 per 100,000 of the population, with an average range from 1.8 to 5.0. The mortality for the month in the registration area of the country was 1.6. In July 1904 five deaths from typhoid fever were reported to the Health Officer and this is equivalent to a typhoid mortality of 1.14 per 100,000 in an estimated population of 437,000 people. The lowest mortalities in 11 years were 1.6 in 1895 and 1.7 in 1898; the typhoid mortality of the month just past is, therefore, less than that of the same month at any time since 1892, an encouraging showing.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Tetanus

Herbert D. Pease, in the *Medical Review of Reviews*, for June, summarized the recent advances in our knowledge of tetanus infections. Meyer and Ransom believe with Marie and Morax that tetanus toxin is absorbed by the peripheral nerve endings and transported to those ganglionic nerve cells for which it has a special affinity, only through the axis cylinders of the nerves. Meyer and Ransom also conclude that the toxin had no poisonous effect on tissues other than those of the nervous system, and on the latter only on its essential cellular elements. The problems presenting in the treatment of tetanus with its antitoxin consist in neutralizing, as early as possible, the toxin present in the blood and lymph channels, and at the same time endeavors to bring antitoxin into contact with any of the poison which has passed into the nerves or further into the nerve roots and spinal cord. The first problem is readily solved by the injection of moderate amounts of tetanus antitoxic horse serum, either subcutaneously or intravenously. The second problem is the most difficult of solution. If, as Meyer and Ransom claim, antitoxin injected into the blood has no very appreciable effect on the toxin already in the nerves, it is incumbent on the physician to administer his antidote at the earliest possible moment if he uses the subcutaneous or intravenous methods, hoping thereby to neutralize the toxin before the fatal dose has passed into the nerves. Injection of serum into the central nervous system are by the intracerebral, the lateral ventricles, and the subdural (lumbar) methods. Meyer and Ransom believe that theoretically injections into the subarachnoid are of no more value than those given

intravenously or subcutaneously and recommend the intracerebral as being more likely to produce good results from an experimental standpoint. They highly recommend a new method, *viz.*, that of injecting the antitoxin directly into the nerves. In one case in which a preventive dose of antitoxin had been given subcutaneously 40 hours after the injury, the patient developed a local tetanus of the region injured eight days later. The injection of antitoxin into the chief nerve supplying that region promptly relieved the tetanic contractions.

From a theoretic standpoint it would appear improbable that the carbolic acid injections of Bacceli, or the subcutaneous injections of the brain tissue of animals, as suggested by Wasserman, or the use of saline infusions, could bring about a favorable action only on the toxin in the circulation and tissues and not on that in the nervous system; and these agents would certainly be inferior to antitoxin. The ideal method of using tetanus antitoxin is as a preventive agent before any tetanus toxin has been produced in the wounded area. The relatively larger number of cases in the warmer months of the year is explainable on the basis that the tetanus bacillus is in a more active condition in the soil during that period.

Bronchopneumonia W. P. Northrup, in the *Medical News*, for April 30, thus summarizes *how to cure a baby with bronchopneumonia*: (1) Castor oil to clear the field of operation. It is the first aid to the injured. (2) Fresh air, cool and flowing. It reddens the blood, stimulates the heart, improves digestion, quiets restlessness, aids against toxemia. Regulate the temperature of air of the room inversely to that of the child. The patient's feet must always be warm, and the head cool. (3) Water plenty, inside and outside, temperature of the water as indicated by child's temperature. (4) Quiet and rest. Tranquilizing influences about patient. Undisturbed sleep. (5) Correct feedings to avoid fermentation and gas in abdomen. If there is need, high hot salines. (6) Antipyretics. Water, no coal-tar products. (7) Heart stimulants. Fresh air, hot footbaths. Relieving tympanites and crowding. Hot footbaths and hot salines can be given in a cold room. Both can be given under the bed clothes. Drugs, whiskey and strychnin; promote general comfort in every rational way. *How to kill a baby with bronchopneumonia*: Crib in far corner of room with canopy over it. Steam kettle; gas stove (leaky tubing); room at 80° F.; many gas jets burning. Friends in the room, also the pug-dog. Chest tightly enveloped in waist-coat poultice. If child's temperature is 105° F. make poultice thick, hot, and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics and wait.

Radium

William Allen Pusey, in the *Journal of the American Medical Association*, for July 16, states that the therapeutic interest in radium is dependent on the fact that it is an apparently spontaneous source of energy, and that some of this energy produces changes in living tissues. In any consideration, therefore, of its therapeutic possibilities, the properties of its radiations must have attention. Radium gives off three kinds of rays: *a* rays, *b* rays and *y* rays. Ninety-nine percent of the energy in radium radiations is found in the *a* rays and one percent only in the *b* and *y* rays. Of the three kinds of rays from rad-

ium the therapeutic interest attaches to *b* rays and *y* rays. The penetration of the *a* rays is so slight that they do not influence the tissues below the most superficial cells; the *b* rays have a relatively slight penetration, and are absorbed by the first half inch of the tissues. The *y* rays alone penetrate deeply into the tissues. He concludes that radium produces effects upon the tissues closely analogous to, if not identical with, those produced by the X-rays. The indications for its therapeutic uses are accordingly along the same lines as those for X-rays, *viz.*, in certain inflammatory affections of the skin, like eczema, psoriasis, lupus, erythematosus and lichen planus; in certain bacterial diseases of the skin like acne sycosis, lupus vulgaris and blastomycosis; in certain diseases in which we wish to cause destruction of tissues of low resistance, as in lupus vulgaris, carcinoma, and sarcoma. In some respects radium will prove superior to the X-rays, while in far greater number the X-rays will have the larger field of usefulness. He believes that it is highly improbable that the use of radium is going to be of epoch-making importance in therapeutics. W. T. Corlett asserts that while radium does have an effect on certain structures in certain diseases of the skin, especially lupus and epithelioma, he has thus far seen less effect than that produced by the X-ray.

Antipyrin

The *New York and Philadelphia Medical Journal*, for July 16, calls attention to the fact that while antipyrin sometimes gives rise to certain cutaneous manifestations, Fournier, five years ago, first described the black spots which he called *la verge noire*. A case was recently reported by H. Malherbe which appears to be the second one on record of such lesions confined to the penis. According to M. Malherbe, the occurrence of black spots as a result of ingestion of antipyrin is confined to the male sex and the spots seem to have a special predilection for the penis. In Malherbe's case a black spot occupying the entire upper surface of the glans appeared in about six hours after the ingestion of 22 grains of antipyrin for an attack of migraine. In Malherbe's opinion the condition is due to a congestion so intense as to lead to ecchymosis. The editor, however, is inclined to regard it as analogous to the fixed erythemata pigmentary degeneration or appearance described by Brocq. These black spots disappear spontaneously, but very slowly.

Pneumonia

S. Solis Cohen, in *American Medicine*, for July 16, maintains that the causes of heart failure in pneumonia are due to (1) toxins, (2) mechanical obstruction, (3) and tendency to clot formation, owing to the altered condition of the blood. He says that the toxins act upon the nervous system and the heart muscles. For the treatment of the toxins he advocates blood-letting early, diuresis and diaphoresis. The serum treatment does not seem to meet the requirements. Blood-letting is also indicated when the heart is suffering because of the mechanical obstruction. He introduces salt solution to prevent the coagulation of the blood, since this condition is due to the toxins. Oxygen must be given in abundance; he does not believe that open windows are sufficient. He says heart failure is sometimes due to want of food and lays great stress upon rest. The patient must make no attempt to accomplish any movement; if change of position is desired it must be done by the attendant. Sleep is absolutely necessary and must be obtained in some way

or other. Nathan Smith Davis, in the *International Clinics* (Vol. 1, 14th series), believes that during the last 10 or 15 years so-called cardiac tonics and stimulants have been called for and used in the treatment of pneumonia and other acute diseases as were the antipyretics of the previous decade. He states that alcohol and strychnin, which are usually employed, are directly antagonistic in their effects upon the cerebrospinal, respiratory and vasomotor functions. The one so neutralizes the other that there is a greater tendency to sleep with less depth of inspiration, and less frequent efforts to cough, which causes both patients and friends to think that he is doing well, and the full amount of alcohol is continued. If digitalis and carbonate of ammonium are used in conjunction with the strychnin instead of the alcohol, the resulting fatalities in a large proportion of cases might be avoided.

Typhoid Fever

In the *Therapeutic Review*, for May, Henry Bates, Jr., believes that corrosive sublimate in minute doses (1/100 grain) can be advantageously used throughout the course of the disease. It allays gastrointestinal irritation, counteracts fermentation, and exerts an anabolic action upon the blood-forming functions. Whether or not it affects the Eberth-Goff bacillus is a problem not solved, but that it favorably modifies the intestinal secretions and diarrhea is a fact not to be disputed. To overcome vasomotor stasis, venous hyperemia and hypostatic congestion, the best method is by the liberal use of digitalin Germanic, Merck. In this grave condition $\frac{1}{4}$ to $\frac{1}{2}$ grain doses may be given hourly for three or four consecutive doses if the threatening symptoms are profound and discontinued for hours when its effects are obtained. When cyanosis is perceived at the finger nails it is good practice to administer this powerful vasomotor remedy in doses ranging from $\frac{1}{4}$ to 1/10 of a grain three or four times daily, as experience has shown its value in maintaining the circulatory functions.

Nephritis

Beverley Robinson, in the *American Journal of the Medical Sciences*, for July, discusses the therapeutics of acute and chronic diffuse nephritis. The first thing to do in all cases of nephritis in which the disease shows acute symptoms is to have the patient go to bed, and the two cardinal principles to be kept in view are (1) physiologic rest, so far as possible, to the diseased organ. (2) Relief of function, especially through the supplementary action of the skin and bowels. The first indication is supplied by going to bed, while diet, judiciously considered, and most appropriate, is the next important direction of meeting the indication. It is wisdom to give small quantities of food and solely in liquid form, and although milk diet, almost exclusively, is the one usually insisted upon in the primary attack, in his judgment there should be certain limitations to this dietary proceeding from common sense and experience. Among the diluents, after a day or two, water in abundance may be advantageously taken, and to this may be added without injury, if the patient asks for it, weak tea, lemonade, or water from a slightly alkaline spring. If the edema or dyspnea is threatening or the urine is suppressed or in small concentrated quantity, the bowels should be emptied rapidly by a purgative enema or by repeated doses of salts, compound jalap powder or calomel. After the bowels are moved a hot wet pack

should be insisted on. If uremia threatens, a few doses of nitroglycerin will often relieve the situation very rapidly. He here favors the sweet spirits of nitre which, in its action on the small vessels, is essentially like nitroglycerin and the nitrites. In a real uremic seizure, abstraction of blood either by bleeding from the arm or wet cups over the loins will sometimes be the only means of saving life. After 8 to 20 ounces of blood have been taken it is often desirable to infuse through the veins with hot saline solution. As regards the use of morphin in uremic convulsions, while the question is still unsettled, he is of the opinion that it is apt to be dangerous in those cases in which the seizure is accompanied by the *contracted pupil*. When the pupil is *dilated* or *normal* he has seen small or moderate morphin injections of evident service.

Quinin

Henry D. Fulton, in the *Journal of the American Medical Association*, for July 30, calls attention to the value of quinin in hay fever when locally used. The treatment, which he states has proved remarkably successful in his hands, consists of the employment of a saturated solution of quinin sulphate in sterilized water as a nasal spray and the application to the mucous membranes of the nares of an ointment consisting of quinin and vaselin in the proportion of 30 grains to the ounce, the applications being made every four to six hours. Simple vaselin is the best base, and the spray alone will not suffice, but should be used as an adjunct to the ointment. Spraying of the nares will at once stop all symptoms of coryza, but the effect will soon disappear unless followed by the thorough application of the ointment. It should be applied at least every six hours, and it may be necessary to repeat it every four hours. Two or three applications of the spray should be made in the 24 hours when the irritation is most intense. The most convenient applicator is the little finger. If the bitterness of the quinin is an objection, euquinin may be used.

Adrenalin

Bullowa and Kapman, in the *Medical News*, advise the hypodermic use of adrenalin chlorid in treating asthmatic attacks. The line of treatment is based on the angio-paretic theory of the asthmatic attack, and the injection is not painful, although in some cases there is a blanching of the tissues about the puncture with a reddened aréola which can be obviated by a deeper injection. They conclude (1) that given hypodermically adrenalin chlorid is capable of cutting short attacks of asthma in from two to 20 minutes. (2) In conformity with the angioparetic theory of an attack the dose must be such as will cause prompt general vasoconstriction; therefore, three to six minims of the 1 to 1000 solution in a single or divided dose is used in adults.

Ergot

A. T. Livingstone, in the *Medical Council*, for June, advises the use of ergot as a means of stimulating the vasomotor centers and toning the muscular fiber. He commends it as a direct stimulant to the unstriated fiber, whether through vasomotor centers or not, and should be applied hypodermically. Its specific function is the strengthening of the weak and relaxed fiber, thus tending to equalize the tension of the vascular walls throughout the body, thus equalizing the distribution of the blood which he deems the true desideratum,

rather than increase of blood pressure about which so much of late has been written. Ergot acts most strikingly upon recently relaxed and unstriated fiber and the earlier it is used the better will be the effects, and he believes that when so used and in sufficient quantity it will abort many cases of pneumonia, influenza and even typhoid fever.

Infantile Diarrhea T. M. Rotch, in *American Medicine*, for May 7, summarizes the treatment of the diarrheal diseases by stating that we can usually determine whether it is the small or large intestine which is affected. Looking at the conditions from this point of view, it is probable that success in the treatment will be the best when the treatment is through the mouth in cases in which the small intestine is affected, and through the rectum when the large intestine is affected.

The treatment in these cases is almost always symptomatic, as experience shows that we cannot introduce germicides into the intestine which will either kill the organisms which are producing the lesions or counteract to any degree the effects of their toxins. As bismuth can pass through the whole course of the intestinal tract, it is rational to give bismuth, always bearing in mind its limited therapeutic properties. Cleaning the intestine of the bacteria by laxatives, supporting the strength of the patient, and combating the nervous symptoms, and hyperpyrexia, are the chief indications, and we have been able to accomplish all thus far. The serum treatment is experimental.

Book Reviews

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the general editorial charge of Gustavus P. Head, M. D. Volume V, Obstetrics, issued by Joseph B. Lee, M. D. April, 1904. Chicago. The Year Book Publishers, 40 Dearborn Street.

Abstracts of the important contributions upon this subject have been compiled by the editor, and in many instances comments of his own add to their value. While nothing radically new has appeared during the last year, the views of a number of different men upon the correct procedure in certain conditions render the indications for treatment clearer than formerly; thus the Cesarean section is steadily growing in favor and is employed far more frequently than in the past. In the treatment of puerperal sepsis the greatest difference of opinion exists, each man claiming good results and showing good statistics.

Obstetric and Gynecologic Nursing, by Edward P. Davis, M. D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia, etc. Second edition, revised. Philadelphia, New York and London, W. B. Saunders & Co., 1904.

The author has had a large experience in teaching nurses, and the success of this book has been shown in this fact. The present edition is considerably enlarged and thoroughly revised. The pregnant condition is considered very thoroughly; the physiology and anatomy are briefly given with the complications that may ensue during pregnancy. Labor itself receives, of course, a great deal of attention, and the preparations for it, the complications and operative procedures are thoroughly discussed. The

care of the child and the diseases of infancy complete the first half. The second part deals with gynecologic nursing and is very complete in every detail. The appearance of the book is very attractive, and a great many illustrations help to elucidate the text.

A Manual of Clinical Diagnosis by Means of Microscopical and Chemical Methods, for Students, Hospital Physicians and Practitioners, by Charles E. Simon, M. D., of Baltimore, Md. Fifth edition, thoroughly revised and enlarged. Illustrated with 150 engravings and 22 plates in colors. Lea Brothers & Co., Philadelphia and New York, 1904.

This excellent work, now in its fifth edition, is very complete in every detail and has been considerably enlarged and improved. The employment of chemical and microscopic methods as aids in diagnosis are today indispensable, and their range of application is rapidly increasing. A very instructive and interesting addition to this volume deals with the nature and principles of staining of the aniline dyes. The action of some of the compound stains and the new dyes formed by their combination is made clear and will serve to render the technic more accurate; the uncertainties of the triple stain, for instance, will be overcome in a measure.

Kryoscopic examination of the urine is discussed with but scant mention. The essential facts are given, but evidently the author is not particularly impressed with its value. A good deal of work has recently been done upon this subject, but the facts may not be sufficiently crystallized for insertion in this volume. Simon believes that there is considerable merit in the Diazo method in the urine of typhoid and tubercular cases, especially as regards prognosis. The test has been allowed to drop into disuse, but inadvisably, the author thinks.

Numerous additions have been made so as to bring the book up to date in every respect. The press work and illustrations are excellent, and the work is to be heartily recommended as one of the best of its kind.

Arteria Uterina Ovarica. The Uteroovarian Artery or the Genital Vascular Circle, Anatomy and Physiology, with their Application in Diagnosis and Surgical Intervention. Byron Robinson, B. S., M. D., Chicago, Ill. Chicago, Ill., E. H. Colegrove, 1903. Price \$1.00.

This monograph details most accurately the anatomy of the vascular supply of the female pelvic organs of generation. It is profusely illustrated with drawings from actual dissections, also from X-ray photographs after injection of the vessels with metallic solution and from corrosion preparations.

The subject is presented in an entirely new aspect from that usually found in anatomic works. The author describes the uteroovarian artery as one vessel with two origins, one from the aorta (ovarian segment), the other from the internal iliac (uterine segment). The anastomosis between the two is a "stove-pipe" one so that anatomic division of the vessel into its two segments is a purely artificial one, and surgical experience supports this view. A large amount of comparative work has been done upon the same vascular tract on the lower animals and many of the plates illustrate these findings. The importance of this work is evident when we consider the vast amount of surgery upon the pelvic organs of women, and a thorough knowledge of this vascular supply is therefore imperative. The press work in places is rather poor and some pages (p. 176) seem to have escaped the proof-reader's attention. In succeeding editions this will no doubt be remedied.

A Text-Book of Diseases of Women, by Barton Cooke Hirst, M. D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic, and the Philadelphia Hospitals. With 655 illustrations, many of them in colors. Philadelphia, New York, London, W. B. Saunders & Co., 1903.

The author has produced an eminently practical treatise on gynecology and one that will prove very acceptable to the general practitioner since special attention is paid to those therapeutic measures which can be carried out by the attending physician himself. In this respect he is quite conservative in his treatment especially in inflammatory cases, and he points out that a certain proportion of these cases will recover without operation, although he warns the reader that these are the exceptional cases. In the matter of operations, the various procedures are clearly described and well illustrated with numerous cuts. He advises against mutilation and recommends that, whenever possible, the uterus and ovaries be saved; the tubes, however, when markedly involved, rarely admit of conservative measures. Electrothermic hemostasis is warmly recommended while the use of the angiotribe is as strongly condemned. The author's text-book on obstetrics is already well known and this companion work on gynecology will no doubt receive as hearty a reception as its predecessor. Together the two books cover the whole field of these two closely allied subjects very completely. The whole appearance of the work is most attractive, and the illustrations are very numerous and well executed.

The Doctor's Leisure Hour. Arranged by Porter Davies, M. D. Charles Wells Moulton, General Editor. Akron, Ohio. The Saalfeld Publishing Co., 1904.

This volume is made up of a large and delightfully interesting collection of anecdotes, amusing stories and short historic sketches of medical life and famous medical men, told both in prose and verse, and illustrates every phase of medicine from its serious to ridiculous sides. It is a book which can be picked up in the leisure moments of a busy life and read as a most successful laugh-provoking panacea for the mental perplexities and worries incident to the daily struggle. Well printed on good paper with clear type and handsomely bound, it is a most attractive volume and promises well for this series.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE—Tuberculosis and Acute General Miliary Tuberculosis. By Dr. G. Cornet, of Berlin. Edited, with additions, by Walter B. James, M. D., Professor of the Practice of Medicine in the College of Physicians and Surgeons (Columbia University), New York. Handsome octavo volume of 806 pages. Philadelphia, New York, London, W. B. Saunders & Co., 1904. Cloth, \$5.00 net; Half Morocco, \$6.00 net.

Dr James' translation of this exhaustive and valuable work of Professor Cornet's really needs no introduction at this time. The whole profession is just now peculiarly awake to the vital importance of the subject of this volume, and Professor Cornet's work has been so long and well known that the mere appearance of an English translation would be the signal for a large number of medical men who cannot read the original to avail themselves of this opportunity. Dr James has, in our judgment, done more than to offer us a translation of the original. In his careful revision and adaptation of the text for American readers he has accomplished a very important end and deserves the heartiest congratulations of

the profession for the way in which he has preserved all the force and originality of the German text, and at the same time has incorporated the latest important additions to our knowledge of this subject.

The chapter devoted to the therapy of pulmonary tuberculosis is one of the most interesting and important in this volume, and the way in which the questions of climatology and institutional treatment are considered could hardly be improved upon. The list of the American climate resorts is a very valuable addition to the volume as a guide for American physicians. The immense bibliography makes this really exhaustive volume a most valuable work of reference, and one which no English or American physician can afford to be without.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE—Diseases of the Intestines and Peritoneum. By Dr Hermann Nothnagel, of Vienna. The entire volume edited, with additions, by Humphrey D. Rolleston, M. D., F. R. C. P., Physician to St. George's Hospital, London, England. Octavo volume of 1032 pages, fully illustrated. Philadelphia, New York, London, W. B. Saunders & Co., 1904. Cloth, \$5.00 net; Half Morocco, \$6.00 net.

To say that this classic work of Dr Nothnagel's has been accorded the same careful translation and editorial revision so conspicuous throughout the earlier volumes of this series is in itself praise enough of the way in which Dr Rolleston has edited this exhaustive monograph. The volume is an evidence of the marvelous development of our knowledge of the diseases of the intestines and peritoneum, and there does not appear anywhere in it an unnecessary or superfluous description, every paragraph being essentially important and germane to the subject in hand. Beginning with the chemistry and bacteriology of the intestines, the whole subject of diagnosis and pathology of the diseased conditions met with is carried through in logical sequence. The diagnosis of stenosis and occlusion of the intestines, one admittedly of great importance to the physician and surgeon, is covered most exhaustively, and the accompanying half-tone plates illustrating the various lesions are wonderfully graphic representations of the conditions as seen during life.

In the discussion of appendicitis it is interesting to note the way in which the English editor clings to the terminology so long in vogue in England. Without entering into the correct or incorrect etymology of one use of the word appendicitis, we are afraid it will be a long time before the American profession can adopt what seems to us the more cumbersome word suggested by the distinguished German author. To describe what we call appendicitis as "scolecoïditiis" seems awkward indeed, but this is of course a mere minor point. The work throughout has been carefully revised for English and American readers and is a well-balanced translation of Prof. Nothnagel's original monograph with only such additions by the editor as bring the work fully up to date.

A Manual of Obstetrics, by A. F. A. King, A. M., M. D., Professor of Obstetrics and Diseases of Women and Children, in the Medical Department of the Columbian University, Washington, D. C., etc. Ninth edition, revised and enlarged, with 275 illustrations. Lea Brothers & Co., Philadelphia and New York, 1903.

There can be no question that the author of this manual has successfully accomplished the end desired as stated in his preface, *i. e.*, to present in an easily intelligible form such an outline of the essentials and rudiments

of obstetric science as may constitute a good ground work for the student. Indeed, after a careful study of this volume of something over 600 pages, one must admit that the author has done even more than this, for he has brought together in a very compact form all the latter-day knowledge of the science and art of obstetrics in such a way as to make this work one of real value as a means of reference. Dr King has given us clearly and concisely the graphic explanation of the mechanism and pathology of labor, the methods of procedure, the conduct of the puerperium, and the necessary obstetric surgery.

The classification and arrangement of the text is excellent and the subdivision into paragraphs is such that a given topic can be quickly found, and the important points readily gotten at. In the chapter upon puerperal septicemia, which has been remodeled and largely rewritten, the author follows the teaching and work of Williams as a basis for his lucid description of this important subject. The illustrations throughout are excellent. A really satisfactory index concludes the volume. We know of no single work upon obstetrics which, within the same compass, at all compares with this volume for its thoroughness, exactness, and clearness of description.

Diseases of the Heart and Arterial System, Designed to be a Practical Presentation of the Subject for the Use of Students and Practitioners of Medicine, by Robert H. Babcock, A. M., M. D., Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons (Medical Department of the Illinois State University), Chicago; etc. With three colored plates and 139 illustrations. D. Appleton & Co., New York and London, 1903.

This work, while not in any sense an exhaustive technical treatise, constitutes a very broad and thorough exposition of the diseases of the heart and arterial system. There is, fortunately, an omission of any elaborate discussion of theories, and the whole subject has been presented in a simple and clear statement of the physical signs and conditions met with in all the pathologic lesions of the heart and vessels.

As the volume represents ostensibly the clinical experience of its well-known author, and the commonly accepted views of the foremost clinicians of the day, it is preeminently a clinical treatise, and as such must be accorded a place among the first rank of similar text-books. The author has considered the question of treatment at much greater length than can be said of most works upon this subject, and in order to make many an obscure point clear has drawn largely from his own vast clinical experience: this part of the work alone can be carefully studied with great profit. The illustrations, of which there are many, are really excellent and most helpful in elucidating the text. Of especial value are the photographs illustrating the treatment of valvular disease by means of resistance exercises.

Throughout this volume the subject has been presented in such a clear and practical way and with such an eminently judicial grasp of the balance between the important and the minor points that it is a keen pleasure to follow the author from cover to cover.

To have produced such a work would redound to the honor of any clinician the fortunate possessor of all his senses of perception, but when we recall for a moment the really cruel affliction under which Dr Babcock has worked all these years, no suspicion of which finds its way into a single sentence of this volume, we are thrilled with the heroic courage of the author who is indeed to be congratulated upon his really great achievement.

Clinical Pathology of the Blood. A Treatise on the General Principles and Special Applications of Hematology, by James Ewing, A. M., M. D., Professor of Pathology in Cornell University Medical College, New York City. Second edition, revised and enlarged. New York and Philadelphia, Lea Brothers & Co.

In the march of medical science generally, the extraordinary rapid development of our knowledge of the pathology of the blood and the blood-forming organs stands out conspicuously. The student of ten and even five years ago is frequently confronted with an amazing array of apparently contradictory statements, and must further analyze and learn to interpret an entirely new vocabulary in order to be able to assimilate the important points being so rapidly brought forward. In this work upon the clinical pathology of the blood, Professor Ewing has attempted, and we may say successfully accomplished, a thorough and clear exposition of the subject. Taking up first the consideration of the technic, chemistry, the morphology and physiology of the blood, he then goes on to a consideration of the special pathology of the blood in the anemias, the acute infectious diseases, and the constitutional diseases, and includes also a study of the animal parasites. This, the second edition of the work, includes the results of all the more recent scientific progress, thus bringing the subject fully up to date. A brief discussion of the general nature of Ehrlich's theories of immunity is among the valuable additions to this edition. There are a number of minor omissions, such as failure to mention Wright's stain which are, however, of no serious import. The full bibliography at the conclusion of each chapter adds much to the volume as a work of reference.

The typographic arrangement and the classification of the text, so important in a work of this character, is all that could be desired. We are confident that this edition will meet with an even more favorable reception than did the earlier edition of this really valuable work.

Medical News

H. G. Golden has located in Willoughby.

A. W. Anderson was elected Health Officer of Lakewood.

N. S. Hatfield, of Bowling Green, is reported seriously ill.

The Columbus Board of Health is inspecting the barber shops.

C. A. Quayle, of Madison, sustained a fractured arm recently.

Joseph Hewetson is reported seriously ill at his home in Amanda.

Walter Jackson will leave Portsmouth and locate near Pittsburg.

W. H. Ketchum, formerly of Madison, will locate in Hopkinsville, Ky.

Dr Middleton, of Cuyahoga Falls, will establish an additional office in Akron.

E. M. Foster, of Manchester, has left for his future home in Houston, Texas.

W. H. Buechner, of Youngstown, is rapidly recovering from a serious operation.

Hugh Baldwin, of Columbus, has been suffering for some time from nephritis.

Coshocton physicians have combined to advance prices which were ridiculously low.

J. Schwencke, of Rock Bridge, has moved to Baltimore, where he will reside in the future.

W. W. Scarborough, of Mt. Vernon, has been elected physician for Clinton township.

S. S. Burrows, of Geneva, is again able to be around after a long and very serious illness.

On account of an injury, C. A. Schaffer, of Hamilton, is no longer a candidate for Coroner.

G. M. Young, resident physician of the Toledo State Hospital; will locate in Evansville, Ind.

A. B. Thrasher, of Cincinnati, spent the month of August with his family at Harbor Beach.

William E. Bruner, of Cleveland, returns about September 1 from a two weeks' trip up the Lakes.

Henry S. Upson, of Cleveland, returned the latter part of August after several weeks' vacation.

Joseph E. Cook, of Cleveland, returns about September 1 from a few weeks' stay at Saegertown.

W. D. Hamilton, of Columbus, has returned from a few weeks' stay at Sagaponack, Long Island.

The Harrison County Medical Society met at Cadiz on July 28. The meeting was a very interesting one.

The Mahoning County Medical Society held a meeting recently and reorganized under the new code.

McKendree Smith, Health Officer of Columbus, has been appointed sanitary expert with increased salary.

S. B. Taylor, of Columbus, and D. W. Iford, of Toledo, have been commissioned major and surgeon, O. N. G.

R. C. Ring, of Springfield, has been appointed chief surgeon of the Springfield, Troy and Piqua Electric R. R.

Victor B. Weller, Starling Medical College of '01, has recently moved from North Lewisburg to Ostrander.

C. E. Spring, of Youngstown, has resigned his position as City Hospital House Physician and will locate in Elyria.

Several Ohio cities are compelling candy, pop-corn and vendors of other dainties to keep their wares in dust-proof cases.

E. F. Wakefield, of Minerva, will spend about a year in post-graduate work, and will locate in Cleveland upon his return to Ohio.

M. H. Carmedy has sold his practice in this city and will return to Painesville about September 1. He will occupy the same rooms that he had before.

The Lake County Medical Society met at Painesville on August 2. H. G. Sherman, of Cleveland, delivered an address on "Diseases of the Nose and Ear."

The Marion City and County Hospital was opened to the physicians and public on August 1. The equipment is complete and modern in every department.

Health Officer Smith is barred from the new position of sanitary officer, recently reacted in Columbus. The law reads sanitary engineer, and Dr Smith cannot qualify.

The Champaign County Medical Society held a meeting at Urbana. S. M. Mosgrove read the paper of the afternoon. It was interesting and very freely discussed.

At the August meeting of the Delaware County Medical Society, W. H. Woodworth read an instructive paper on "Atony of the Stomach in its Relation to Dilatation."

The plan of the post-office department to fight the worst patient medicine evils by refusing the use of the mails is a step of great importance to a long suffering public.

The *Fremont News* publishes an editorial saying that physicians are giving warning of the dangers of "dust pneumonia" and "rose fever," and instructions how to avoid them.

Secord H. Large is attending the meeting of the American Academy of Ophthalmology and Oto-Laryngology in Denver, Colo., August 24, 25, and 26. He will be away for at least two weeks.

R. B. Meek, of Fremont, was elected poor physician, as well as E. Ickes for another section of his town. O. C. Vermilya was selected to attend the poor in Riley, Ballville and Sandusky townships.

The members of the Seneca County Medical Society assembled recently to do honor to E. J. McCollum who has just completed his fiftieth year in practice. The banquet was followed by dancing and cards.

Seventy-seven physicians from various parts of Stark County gathered at the Lakeside County Club of Canton on July 28 to attend the annual outing of the Stark County Outing Club. The Club spent a very pleasant day.

The Marion County Medical Society has invited the Delaware County Medical Society to meet with them early in October. Each Society is to furnish an essayist. After the literary program has been carried out a banquet will be held.

The Crawford County Medical Society met at New Washington. A number of interesting papers were read. It is reported that the meeting was the best attended and most interesting of any held since the organization of the Society.

The trustees of the estate of the late Mrs. Jane Case, widow of a late prominent physician, have recently purchased one of the finest old residences of Delaware and turned it over to a Board of Trustees of representative citizens for a City Hospital.

N. L. McLachlan read a paper on "Heart Trouble" at the Hancock County Medical Society meeting held at Findlay. The paper was well prepared and was followed by a general discussion. J. C. Tritch lectured to the Society afterward. The meeting was well attended and the organization shows a healthy growth since its formation.

The regular meeting of the Stark County Medical Society was held at Alliance. S. P. Barnes, of Massillon, delivered a lecture on "Etiology and Treatment of Acute Articular Rheumatism," which was discussed by most of the members present. W. H. Beecher read a paper on "Acetozone and Its Uses." Reports of Cases were made by N. W. Culbertson, L. M. Zintsmaster and F. Pennock.

NEW HOSPITAL: The new building of the City Hospital of Akron, a fitting monument to its donor, Mr O. C. Barber, has been dedicated with appropriate ceremonies. It cost over \$200,000, and is said to be the finest and most completely equipped hospital of its size in the United States. It is a fire-proof, five story, brick, tile, and concrete structure, with a capacity of 80 beds, and possesses every modern convenience in its operating-rooms, maternity wards, power-house and laundry. It will be under the able direction of the Superintendent, Miss M. A. Lawson, who has done so much to make this fine institution possible. The old hospital is being converted into a home for nurses.

Deaths

James W. Wilson, of Fremont, died recently.

Nicholas Harrington, formerly of Columbus, died recently at Palerimo, Kansas.

John Turnbull, of Xenia, died recently, directly following a surgical operation.

John Campbell, of Kenton, died recently. He was also well known in Mansfield.

G. S. Stewart, of Pickerington, died recently after having been a sufferer for a long time.

Joseph Weaver, of Miamisburg, a prominent and respected citizen, died recently. He was the oldest male resident in the town.

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John of Gaddesden, Variola and the Finsen Light-Cure

BY H. E. HANDERSON, M. D., CLEVELAND

Just upon the western border of the county of Hertford, England, around the head-waters of the little river Gade and some 10 or 12 miles northwest of the town of St. Albans, lie two small parishes known as Great Gaddesden and Little Gaddesden. The latter of these is said to have been the home of the famous English physician, John of Gaddesden, and an old house, still standing opposite the entrance of Ashbridge Park, is pointed out to visitors as the former residence of this medieval medical worthy.

John of Gaddesden was probably born about the year 1280, and was thus a contemporary of Bernard Gordon and a junior contemporary of Gilbert of England. According to Dr Norman Moore, he began the study of medicine in Merton College, Oxford, in 1299, received in this institution his medical degree, and subsequently became here a famous and popular medical teacher. He was likewise in his day the most popular practitioner of London, and the first native Englishman to hold the appointment of ordinary physician to the King of England, probably the unfortunate Edward II. Something of his popular reputation may be gathered from the well-known lines of Chaucer, his contemporary :

"With us ther was a Doctour of Phisik :

.
Wel knew he the olde Esculapius,
And Deyscorides and eek Risus (Ruffus?),
Olde Hypocras, Haly and Galyen,
Serapion, Razis and Avycen,
Averrois, Damascien and Constantyn,
Bernard and Gatesden and Gilbertyn."

Indeed, it has been conjectured that the poet, in his picture

of the doctor of his day, had specially in mind the character of his London acquaintance John of Gaddesden.

In later life, according to Dr Moore, John of Gaddesden took priest's orders, and was in 1342 appointed a prebendary of St. Paul's Cathedral, London. He died in the year 1361.

Of his writings the "Rosa Anglica," or English Rose, a treatise on the practice of medicine, written, as the author says, in the seventh year of his teaching (probably, therefore, about 1315), has been preserved to our day, and supplies to us much interesting and amusing information of the medicine and medical customs of the early fourteenth century in England. This work was first printed at Pavia in 1492, and later editions appeared at Jena in 1499, Venice 1506 and 1516, Naples 1508, and revised, though scarcely improved, by a German editor, Nic Schopf, at Augsburg in 1595. The medieval popularity of the Rosa Anglica may be readily inferred from these numerous editions.

A recent hasty visit to Washington offered me an opportunity for a cursory inspection of the first edition of this famous work, a copy of which is preserved among the incunabula of the Library of the Surgeon-General. The book in question is a small folio of perhaps 350 pages, well printed, well bound, and in all respects perfectly legible, though the presence in the text of the numerous contractions common at this period renders the reading at first a little perplexing. Like most books of this early age there is no title-page, nor are the pages numbered, but simply the leaves. In place of a title-page and upon the first fly-leaf, in the ordinary print of the general text, we read:

Rosa anglica practica medicine a capite ad pedes,
and the text proper (omitting the contractions, insuperable to modern type) begins:

*Practica Joannis anglici physici clarissimi ab operis prestantia
Rosa medicine nuncupata.*

Turning then to the last page, we find the following quatrain in the Leonine or rhyming Latin verse of the period:

*Explicit ista rosa pre cunctis preciosa.
Plurima si fatur non vilis ob hoc teneatur.
Tot bona sub modicis quis possit premere dictis.
Hanc tantum semper venerabimur et sapient.,*

together with the curious colophon:

*Emendatum per magistrum Nicolaum scyllacium siculum
messanum artium doctorem in florentissimo papiensi ginasio phie
extraordinariam legentem.*

*Joannesantoninusbiretta impressioni tradidit. Papie, 1492,
die 24 Januarii.*

The work is divided into five books, of which the first is devoted to the discussion of fevers, and the last is an Antidotarium, or, as we should say today, a formulary. The author modestly informs us that as the rose has five sepals, so his book has five parts, and as the rose excels among flowers, so is his book pre-eminent among books. As may be inferred from the title, diseases are discussed in order of location from head to foot (*a capite ad pedes*). It is also, perhaps, worthy of remark that among the remedies described in the formulary is an *oleum de laudano*—the earliest use of the term laudanum which has yet met my notice.

Quite recently the name of John of Gaddesden has become familiar upon the pages of our medical journals in connection with the Finsen light-cure, especially as applied to the treatment of smallpox. It has even been stated that this treatment of variola was introduced into medicine by our author, and that accordingly it is merely a revival of an old method. Now I hope to show in the sequel that the use of red wrappings in the treatment of smallpox was neither original with John of Gaddesden, nor had this method anything to do with the chemical effect of the red rays of light.

Before discussing this point, however, it may not be uninteresting to consider briefly the pathology and general treatment of smallpox taught by this earliest of English physicians-in-ordinary. His chapter on this subject is too long to warrant formal translation, and I shall therefore content myself with furnishing merely an abstract of its more prominent features. It is only fair to state, however, that John of Gaddesden's discussion of variola and its treatment is as systematic and complete as that found in the majority of our modern text-books. The name, pathology, varieties, diagnosis, prognosis and treatment, each claims its special paragraph, and the complications of the disease are fully and carefully considered.

In the first place the name variola (the plural form variolae is always employed) is said to be derived from the *variety* of the lesions manifested by the disease. Variola are to be distinguished from morbilli and punctilli, the former small pustules of bilious origin, the latter infections of the blood, resembling in appearance flea-bites, but less evanescent. The larger variety of punctilli bears the name *mesles*.

Variola are defined as small abscesses or pustules appearing on the skin, for the most part red in color, spreading irregularly into the flesh and affecting the entire body. They are due to corruption of the menstrual blood, run a course of evil crises, and

are usually preceded by a self-limited (*conclusa?*), continued fever, of putrid and sanguineous type.

The disease is occasioned by a corruption of the blood by the menstrual fluid, which serves as the food of the fetus during intrauterine life. This corrupt blood subsequently undergoes ebullition, and breaks out upon the surface of the body in the form of variola or morbilli. Hence, no one, as a rule, escapes these diseases, though exceptionally the impurities of the blood may be eliminated through the urine, the fecal discharges and the perspiration, or by means of venesection. Accidental causes of variola may also be improper food, or the mixture of incompatible foods, such as the blood of animals, animal broths (*brodio*), milk and wine, fruit and ginger, garlic and onions with fish, excesses in wine or new beer, as well as coitus with a menstruous woman, or the neglect of venesection. A man may also suffer from variola twice, in case the entire corrupting material is not expelled from the body by the first attack, or if he eats figs frequently, since the latter fruit expels matter to the exterior.

There are four species of variola, *viz.*, the sanguineous, the bilious (*colericæ*), the phlegmatic and the melancholic, distinguished by symptoms peculiar to each. The first two varieties are generally benign in character, while the phlegmatic species is more dangerous and the melancholic is generally fatal.

The premonitory symptoms of variola with sanguineous fever are pain in the head and back, due to the distension of the vein of the back by a supraabundance of corrupt blood. In variola we find also redness and swelling of the face, discomfort of the eyes and lachrymation. These latter symptoms also exist in morbilli, but in the latter disease there is present more lachrymation and less pain in the back, because few cases of this disease are produced by the excessive virulence of the corrupt blood, although great inflation and distress occur. Other premonitory symptoms of variola are weight and pain in the head, pricking of the skin, itching of the covering of the lungs and of the throat, sternutation, soreness of the chest and hoarseness. Disturbed sleep, thick sputum, numerous spots upon the skin (*alices*) and sparks before the eyes (*apparitio lampadum*) also occur. When the eruption begins to appear it resembles the heads of needles, or grains of millet, or the heads of ants. The papules then begin to multiply and increase in size, pus and crusts are formed, and these finally dry up and fall off.

Prognosis: Favorable symptoms are an eruption, scanty in quantity and light in color, coming out easily and preceded by a

mild fever. The fever decreases on the appearance of the eruption upon the third or fourth day. If the papules are small, light colored (*albae*) and hard, closely grouped and coming out with difficulty, the prognosis is bad, as the patient is apt to die before the eruption matures. An eruption appearing and then disappearing, especially if it is of a violet color and the patient is feeble, is of evil omen, though a strong patient has some hope of recovery. But if the pustules are large, blackish and emit a virulent pus, the disease is usually fatal. A fever preceding the eruption affords a better prognosis than an eruption preceding the fever. Diarrhea, bloody urine, high fever, great thirst, difficulty of respiration and syncope presage a fatal termination.

The treatment of variola recommended by our author is extensive and elaborate. Space permits but the briefest of summaries.

In the premonitory stage venesection, with mild laxatives, refrigerants or even astringents are to be prescribed. Later he resorts to alteratives with acids, digestives, refrigerants, sedatives and occasionally styptics, together with such remedies as favor the development of the eruption. For the latter purpose a drink of dried figs, decorticated lentils, gum tragacanth, fennel seed and saffron, is specially commended. Ice-cold water and similar cold drinks are not suitable after the second day of the eruption, because they prevent the ebullition of the blood and the expulsion of the variola. The hands of the patient are to be tied or constantly covered with gloves, in order to prevent scratching of the pustules, and drying of the latter may be favored by a bed of rice-flour or barley-meal. The care of the eyes, nose, mouth and lungs, together with the treatment of diarrhea, are all carefully indicated.

The passage to which special attention has been recently directed is couched in the following words:

Deinde capiatur scarletum rubeum et involvatur variolosus totaliter, vel in panno alio rubro, sicut ego feci de filio nobilissimi regis Angliae, quando patiebatur istos morbos, et feci omnia circa lectum esse rubea. Et est bona cura. Et curavi eum in sequenti sine vestigiis variolarum.

"Then take a cloth of scarlet or some other red color and wrap up the patient completely, as I did in the case of the son of his majesty, the king of England, when he was suffering from this disease. In this case I also had all the hangings of the couch made of red material. The case turned out very satisfactorily and the patient recovered without a mark of smallpox."

The distinguished patient in this case is supposed to have been Thomas of Brotherton, afterwards duke of Norfolk, son of Edward I. and his second wife Marguerite of France.

It will be observed that John of Gaddesden claims no originality for his method of treatment in this case. He simply states the fact and what he considered the result. As a matter of fact the treatment of smallpox by scarlet or red wrappings is mentioned by at least two physicians before our author. Gilbertus Anglicus, writing probably not later than 1290 A. D., says:

*Vetulae provinciales dant purpuram combustam in potu, habet enim occultam naturam curandi variolas. Similiter pannus tinctus de grano.**

"Old women in the country give burnt purple in the drink, for it possesses an occult faculty of curing smallpox. The same may be said of cloth dyed in grain."

A few years later Bernard Gordon (1305), an eminent professor of Montpellier, recommends the same treatment, in words almost identical with those of John of Gaddesden:

Deinde involvatur totum corpus in panno rubeo. "Then wrap the entire body in a red cloth."

Gilbertus Anglicus ascribes the treatment to "Old women in the country," and ventures upon an explanation of its action, which, however, does not explain. Indeed the earliest rational attempt at an explanation which has met my notice occurs in the "Philonium" of Valescus de Taranta, a Portuguese physician, writing in 1418, who says:

Deinde involvatur in panno laneo de persico vel saltem rubeo, ut per visionem panni rubei sanguis ad extra moveatur, et sic ieneatur in calore non superfluo, juxta tenorem sexti canonis.

"Then wrap the patient in a woolen cloth of purple (*persico?*) or at least of a red color, so that the sight of the red cloth may move the blood to the exterior and may hold it there in a moderate heat, according to the tenor of the sixth canon (of Avicenna)."

On the whole then, I infer the association of ideas in this treatment to have been somewhat as follows: Scarlet and red have been from time immemorial associated with the idea of fire and heat. A scarlet cloth is therefore warmer than a similar cloth of another color. Warmth applied to the surface of the body favors the development of eruptive diseases, including smallpox. Hence

*Grano—doubtless the *granum Cocci*, *Coccus ilicis* or *kermes animal*, an insect found on the *Quercus coccifera* and employed for dyeing purposes. It was supposed to be of vegetable origin until the 18th century, and has been largely replaced in modern times by the cochineal insect. A *confectio alkermes* and syrup of *kermes* were official preparations in medieval medicine.

wrapping the patient in a scarlet wrap should specially favor the development of the eruption in this latter disease.

It will be seen, accordingly, that the treatment by red wrappings had nothing whatever to do with the modern light-cure, as developed by Finsen.

Before concluding, a few words may be said as to the general character of John of Gaddesden and the *Rosa Anglica*. Historians of medicine are by no means unanimous in their criticism of the man and his book. The majority seem to regard him as an ignorant, superstitious and avaricious, but acute and ambitious charlatan. On the other hand, John Leland, his countryman, and Herman Conring almost exhaust eulogy in his praise. This is certainly going too far. Freind quotes the harsh criticism of Gui de Chauliac (1363):

"Finally appeared a silly *Rosa Anglica*, which was sent to me and which I saw. I believed I should find in it the odor of agreeableness, and I really found the fables of Hispanus, Gilbert and Theodoric," and adds: "I fear that the substance of this characterization is only too true; yet, in spite of the severe criticism of Gui, you will find that John was no fool, and that although, to tell the truth, he was nothing but an empiric, he was yet what we might call one of the better representatives of his class." Sprengel's judgment of our author seems to me sensible and just. He says:

"His silly charlatanry is scarcely remarkable, since we observe similar outbreaks of pious ignorance, deception and gross quackery in almost all the physicians of this age."

It is, indeed, no easy task to frame a canon of criticism for the medical writers of medieval times. Science and social surroundings have changed so utterly since their day that we are scarcely in position to appreciate justly their ideas and attainments. Ignorance and superstition were the unhappy heritage of the age, and it is scarcely fair to expect Gaddesden to escape their baleful influence. In fact he was in all respects a true son of his time.

John of Gaddesden was not, however, ignorant of the medical knowledge attainable in his day. No writer of the period quotes more frequently the writings of his predecessors, immediate and remote. To lay to his charge a lack of originality, would be to establish for him a standard not demanded of our own writers of the present day. But John was no philanthropist. He did not practice, nor did he profess to practice medicine "for his health," if the use of a slang, but very expressive, phrase may be

pardoned. Indeed, one of the most curious features of his curious work is the frank confession of his fondness for money and valuable gifts, a frankness which seems sometimes to almost raise the author above the suspicion of sordid avarice.

The title of his work "The English Rose" is frequently adduced in evidence of his silly ambition and straining after effect. Such titles, however, were only the fashion of the day, and his contemporary, Bernard Gordon, a professor at Montpellier, called his own excellent compendium of medical art "The Lily of Medicine." The taste of the age was different from our own, and yet I fail to see anything more ambitious in the title "The English Rose" than in "Twentieth Century Practice," a title which adorns (?) a modern and voluminous work issued just at the close of the 19th century.

John was a man of many medicines (an "accomplished therapist" is, I believe, the modern phrase), and if his remedies were often gross and disgusting, who shall say that these very qualities did not increase their efficacy in the eyes of the medical public of the 14th century? Yet he had more agreeable (and, of course, more expensive) remedies for the wealthy, just as we have crude drugs for the poor and elixirs, emulsions and sugar-coated or silvered pills for those able and willing to pay for such luxuries of medication. The principle is correct, though liable to abuse in practice.

If John is boastful and self-assertive, we must bear in mind that medical journalism and the reportorial facilities of the daily paper were quite unknown in his day, and the incognito reporter absolutely undeveloped. Hence the shrinking modesty which characterizes our great physicians of the present day could scarcely be expected in the 14th century. Moreover it must not be forgotten that John of Gaddesden was a royal and a metropolitan physician of reputation, and observation teaches us daily that such coryphaei of our art are "always positive and sometimes correct."

A singular characteristic of the author of the "Rosa Anglica" is a "damnable facility" for running into verse, either by way of quotation, or apparently impromptu and original. Comparatively few pages lack a few lines of poetry, and though I find nothing to indicate that John of Gaddesden could claim to be the Oliver Wendell Holmes of his century, it is only fair to say that I do not find his poetry materially worse than that of his contemporaries. An age which could manufacture verses on all possible subjects, from transubstantiation to syphilis, was naturally not fastidious on the character of its poetic gems.

On the whole, I think the "Rosa Anglica" may be looked upon as a fair compendium of the medical art of its day, albeit somewhat disfigured by the idiosyncrasies of its grotesque author. As a photograph of medieval medicine it is attractive and amusing. Otherwise it is of little or no importance.

Fluid in the Pleural Cavity Simulating Pneumonia

BY CHARLES F. HOOVER, M. D., CLEVELAND

The respiratory murmur transmitted to the ear of an examiner through the normal lung and chest wall is a mixed sound composed of the sound produced at the glottis modified by its transmission through the pulmonary parenchyma and the vesicular sound which has its origin in the remote ramifications of the air passages, probably in the infundibula. These two sound factors may be differentiated only under pathologic conditions. The differentiation of the bronchial breath sounds or so-called tubular breathing is a common clinical experience as exemplified in the bronchial breathing heard over a consolidated or compressed lung. In these instances the vesicular element is eliminated by virtue of the infiltration or compression of the lung, and the bronchial breath sound is transmitted in its integrity to the examiner's ear, because the consolidated or compressed lung offers a homogenous medium for the transmission of sound. There is not the refraction and reflection of sound which must occur when the sound traverses such heterogeneous media as the aerated lung. The elimination of the bronchial or, more accurately, laryngeal factor of the normal respiratory sound has never been accomplished experimentally, and clinically I have never met with an account of any instance other than the one which the writer reported two years ago in a paper read before the American Medical Association. This case was a patient suffering from pneumonia who was seized with violent and prolonged clonic spasms of the diaphragm, during which the glottis remained firmly closed. During each attack of phrenic spasm there was no sound audible over the larynx or trachea, though there was a clearly defined vesicular respiratory sound heard over the entire lungs with each violent spasm of the diaphragm and accessory muscles of inspiration. When the vesicular factor of the respiratory murmur is eliminated by either consolidation or compression of the lung, we have the phenomena of bronchial breathing and bronchophony. Fluids are good conductors of

sound, but nevertheless there is a very prevalent medical conception that fluid in the pleural cavity obscures the respiratory sounds. The fluids which are found in the pleural cavity, *viz.*, serum, blood and pus, are not acoustically opaque, so why should the respiratory sounds be obscured? The presence of fluid implies compression of the lung. Compression of the lung will eliminate the vesicular breathing, but if the compressed lung facilitates the transmission of the bronchial breath sounds, and if the fluid is a good conductor of sound, why do we not always hear bronchial breathing over the site of fluid in the pleural cavity? There are several factors which modify the acoustic transparency of this solid lung and fluid medium. One is the physical law of refraction and reflection of sound in its passage through media of varying densities; the other is the condition of the visceral and parietal pleura. Both these factors may vary greatly in cases of fluid in the pleural cavity. The relative densities of the fluid and compressed lung, we can readily see, must vary with the degree of compression of the lung behind the fluid. A completely carnified lung containing an open bronchus immersed in fluid would best conserve the acoustic transparency of such a pathologic condition. The carnified lung in the fluid would offer less obstruction to the passage of sound than a piece of partially compressed or atelectatic lung would offer, because the carnified lung more nearly approximates the density of the fluid than does the partially compressed lung. Hence there is less of refraction and reflection of sound waves in transit from one medium to the other. This point I think can be proved by some of the clinical and pathologic experiences I shall describe. The other source of acoustic opacity lies in the structure of the visceral and costal pleura. A thin elastic pleura will obscure the lung sounds much less than a thickened pleura. Clinical experience confirms this point for the old pleurisies in which the pleural thickening has occurred are the cases in which the breath sounds are inaudible.

The first case which attracted my attention to these phenomena was that of a woman admitted to the City Hospital about eight years ago. The patient had a fibrous myocarditis and had had anasarca from which she partially recovered before admission to the Hospital. When admitted she had only moderate edema of the legs and no free fluid in the abdominal cavity. The only physical signs of interest in this connection were confined to the right thorax. That portion of the chest normally occupied by the lower right lobe of the lung was flat

on percussion and very resistant. Tactile fremitus over the flat area was absent. The upper boundary of this flat area was sharply defined by the normal anatomic position of the interlobular sulcus. Over the flat area auscultation revealed loud, high-pitched bronchial breathing, not remote but apparently as near the ear as one hears it in cases of lobar pneumonia. Pectoriloquy was so brilliantly demonstrable that it was a source of amusement to the attending physicians to have the patient recite stanzas of familiar songs while the examiner's ear was applied to the chest wall over the dull area. Every word could be distinctly understood as if the patient were talking directly through the chest wall. I have never met with an instance which so clearly satisfied the etymologic significance of the term pectoriloquy. The patient died after a few weeks' residence in the Hospital. The autopsy showed the right thorax to be occupied by a normal upper lobe. The site of the lower lobe of the lung was occupied by clear serum. The lower lobe was carnified to a mass about the size of a billiard ball. This was clearly the result of the anasarca which existed before her admission to the Hospital. There were no traces of pleurisy on either the visceral or parietal pleura. We practically had a large bronchus immersed in fluid, no obstruction from the pleura, ideal physical conditions for the conduction of sound. During life there were no rales heard over the fluid area.

The following case shows that blood may conduct the bronchial respiratory sound as well as serum:

A negro, 45 years of age, was admitted to the City Hospital complaining of severe pain in the region of the last dorsal and first lumbar vertebrae. Nothing could be demonstrated to account for the pain. After several days' residence in the Hospital the patient was found one evening much prostrated, suffering from dyspnea, and having a rapid pulse of very small volume. The temperature was 100°. Physical examination revealed the entire left thorax to be flat on percussion, tactile fremitus was absent, auscultation gave loud high-pitched bronchial inspiration and expiration over the entire left side laterally and posteriorly. Exploratory puncture showed blood. There were no rales.

The autopsy on the following day revealed an aneurism of the abdominal aorta directly beneath the diaphragm the size of a small apple which had formed adhesions to the diaphragm and ruptured into the left pleural cavity. The left thorax was filled with clotted and fluid blood. The patient practically bled to death in his pleural cavity.

A boy, nine years old, in whom the heart was so displaced that the apex was palpable in the left axillary line, was suffering with fever and a high degree of dyspnea. The liver was displaced nearly four fingers' breadth below the costal border in the nipple line. The right thorax increased in volume to such a degree that he had marked scoliosis with the convexity to the right. On auscultation in the right axillary line loud high-pitched bron-

chial inspiration and expiration was heard. There were no rales. In the right axillary line the sounds of the heart were distinctly audible. Paracentesis was performed and three quarts of pus were withdrawn at the first operation without difficulty. When the aspiration was completed the liver had ascended beneath the ribs and the left-sided scoliosis was transformed into a right-sided scoliosis.

A moribund patient admitted to the City Hospital gave many signs of a large pleuritic effusion of the right side, *vis.*, displacement of the liver downward and the heart to the left, and flatness on percussion. Over the entire middle and lower right thorax high-pitched bronchial inspiration and expiration with pectoriloquy were heard. During inspiration there could be heard many medium and coarse mucous rales which were, however, not consonant in character. Exploratory puncture of the right thorax revealed seropurulent fluid. At the autopsy we found a tubercular pleurisy with the right chest filled with thin purulent fluid. The right lung was compressed into a thin carnified mass which lay firmly against the mediastinum. This was the single instance of the kind in which there were an abundance of moist rales, though it is to be noted that they did not have high-pitched consonance so characteristic of the rales of a pneumonia which is sufficiently firm to give high-pitched bronchial breathing.

All the cases that I have thus far described have been those in which the fluid was large in amount so that the entire lung, or at least the lower lobe of the lung, was firmly compressed or carnified.

The following case is one in which the amount of fluid did not exceed one pint, certainly not sufficient to compress the whole of the lower lobe of the lung and apparently it is inconsistent with the theory of the homogeneous medium formed by the compressed lung and fluid being essential for the production of bronchial breathing:

The patient, a woman aged 50 years, complained of pain in the lower left thorax. She had fever and cough with mucous expectoration. Physical examination revealed an area at the base of the left thorax posteriorly reaching so far as the mid-axillary line anteriorly and nearly as high as the lower angle of the scapula superiorly, over which the percussion note was dull and resistant. Tactile fremitus was faintly perceptible. Auscultation revealed high-pitched bronchial inspiration and expiration with pectoriloquy. Inspiration was accompanied by medium moist rales, but there was not that consonance to the rales which one finds in a firm pneumonia. There was a disproportion between the bronchial breathing and pectoriloquy and the pitch of the mucous rales and intensity of the tactile fremitus. Paracentesis was performed and one pint of serum was removed. As the fluid receded during aspiration the in-

tense dulness was replaced by a slightly dull percussion note. The bronchial breathing was replaced with vesicular breathing. One could trace the recession of the fluid by means of the stethoscope as well as by percussion. This case seems inconsistent with our ideas of the acoustic conditions in fluid and lung preparations. The only hypothesis which I can conceive on which the physical signs are explainable is that the fluid was firmly walled off by narrow lateral boundaries, thus displacing the lung in a purely central direction. Under such conditions it is conceivable that over a small area we still had the firmly compressed lung in contact with fluid, though not so extensive as in the preceding cases.

The text-books generally leave the impression on the mind of the student that pleural effusion and loud bronchial breathing are inconsistent. This I am sure is not the truth. During the past week I have had under observation six cases of pleurisy with effusion, in three of which bronchial breathing was audible over the fluid. I have no accurate statistics from which a statement could be made but a conservative estimate would be about 30% of cases of fluid in the pleural cavity are accompanied by bronchial breathing and pectoriloquy. The obscuring of the breath sounds in pleurisy with effusion is due to the thickening of the pleura and not to the presence of fluid. Why is it often overlooked? Because physicians have so accustomed themselves to the use of stethoscopes that they neglect auscultation with the unaided ear. In many instances, in fact the majority of these cases give absence of the respiratory sounds to auscultation with any auscultatory instrument, but reveal distinct bronchial breathing and pectoriloquy to the unaided ear.

Recently there came to my observation a patient with pleuritic effusion from whom a small amount of fluid had been withdrawn by paracentesis, and though all the physical signs warranted the belief that there still remained a large amount of fluid in the pleural cavity, repeated exploratory puncture in the posterior axillary line was unsuccessful. With the stethoscope one could hear no breath sounds over the entire base of the affected side. Using the unaided ear one could hear distinct bronchial breathing over the entire lower half of the affected side. In the paravertebral line, however, the bronchial breathing was louder, higher pitched than elsewhere, and over this site fluid was found by paracentesis, and later drainage was established and three pints of fluid removed.

There is not sufficient time to go fully into the differentiation between pleurisy with effusion from pneumonia, when bronchial breathing and pectoriloquy are present. When other signs

are ambiguous, the essential point to have in mind is the absence of rales when bronchial breathing is present or if mucous rales are present they are not of the consonant variety we hear over a consolidated lung.

I do not pretend to offer the explanation I have given as satisfying all instances of bronchial breathing and pectoriloquy over the area of fluid in the pleural cavity. Nor has there been enough sufficiently accurate observation to explain the absence of these phenomena in certain cases of fluid in the pleural cavity. The explanation offered here seems to satisfy the physical conditions found in the several cases in which autopsies were performed. It may be on further postmortem study of the cases which do not give bronchophony and pectoriloquy we may find that the bronchi leading to the affected lung are the source of acoustic opacity. We know from experience in lobar pneumonias that the stoppage of a bronchus can as completely cut off all respiratory sounds and tactile fremitus as so frequently do diseases of the pleura. The real difficulty in this matter lies in finding some explanation for the absence and not for the presence of bronchophony and pectoriloquy in cases of pleurisy, hydrothorax and hemothorax.

Report of a Case of Salivary Calculus

WITH EXHIBITION OF SPECIMEN

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On January 14, 1902, while in the service of Dr Crile, Mr Chas. C., Scotchman, aged 56, foreman in screw works, was seen in consultation with Dr W. T. Barger. The patient was pale and anemic, and gave a history of suppurative prostatitis and cystitis six years before, making a complete recovery 10 weeks later. For a year previous to being seen he had complained of unusual dryness of the mouth in the morning, but during the day there was an abnormally large secretion of clear saliva, the quantity greatly increasing during the following meals there was a progressive interference with articulation and deglutition with but little or no pain. The pain did not become severe until within six weeks of the time seen, when he had a severe cold. The tongue was found to be displaced upward and backward. Examination disclosed an angry fungating excrescence one centimeter distant from the frenum linguae on the left side. The ulcer was oval in form, 2.5x3 cm., and fairly symmetric, overlying a hard tumor almost the

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size of a walnut. The surrounding mucous membrane was livid, and slightly elevated; the ulcer was coated with a dirty grayish-yellow discharge and emitted a foul, sickening odor.

Upon palpation the tumor was somewhat movable, there was a slight enlargement of the submaxillary glands and considerable pain on pressure. Malignancy being suspected, it was deemed advisable to remove a small portion of the ulcer for examination, and this was attempted under cocain anesthesia. Upon insertion of the needle the hard gritty surface of the calculus was encountered, thus removing doubt as to the diagnosis, *i. e.*, acute inflammation and obstruction of Wharton's duct by a salivary calculus. An incision through the tumor mass down to the calculus permitted its easy removal. The calculus weighed slightly over 62 grains, it being the third largest single stone of the 207 cases recorded. Salivary calculus or sialolithiasis is interesting on account of its rarity and the possible errors of diagnosis. A brief resumé of the literature of the subject may be of interest.

According to the reviews of Fütterer¹ and Roberg,² 207 cases are recorded. I shall quote freely from Roberg, whose article appears in the current *Annals of Surgery*. Calculi vary in size from that of a grain of sand to one 3 cm. long and 5 cm. in circumference. The usual size is that of a split pea. Their shape is more or less cylindric, oval or round, and frequently spindle shaped. The surface may be smooth but is usually uneven, finely granulated or warty. The color is usually gray or grayish-yellow or white; it may be slightly tinged with brown. In consistency they may be hard or fragile. The cut surface is generally lamellated. The specific gravity varies over a wide range.

The calculi consist principally of calcium carbonate and calcium phosphate, occasionally triple phosphates are found. The following analysis will illustrate the usual composition:

Calcium carbonate	81.3
Calcium phosphate	4.1
Soluble salts	6.2
Organic matter	7.1
Water, etc.	1.3

Men are affected about 10 times as often as women. Calculi are usually found in middle life; the earliest age at which they have been found was at three weeks, and two patients were operated upon and relieved at 70 years, but from the thirtieth to the fiftieth year seems to be the preferred time of life for their occurrence. Usually but one calculus is found, but not infrequently two or three; in one instance 10 were found, and in another "a great many," the number not given.

They occur more frequently in connection with the submaxillary than the parotid gland. This probably depends upon differences in the constitution of the secretion of the glands; that of the parotid is serous and quite limpid; that of the submaxillary is mucus and serous, glairy, owing to the presence of a larger amount of mucin, which seems to favor the agglomeration of organic salts.

There is little knowledge of the originating cause of their formation. The precipitation and accretion of urinary salts in the urinary bladder have suggested a like origin for salivary calculi. Their very common situation within the main salivary ducts near their opening into the buccal mucosa, through which small bodies might enter the ducts, forms the basis of the hypothesis that foreign bodies entering in this way may be the cause; there are, indeed, a few instances in which the presence of a foreign nucleus within a salivary calculus has been verified. Gross foreign bodies, among which are numbered splinters of wood, fishbones, shot, various seeds, fragments of carious teeth and broken down tartar have been the nuclei of salivary calculi in a number of cases. According to the hypothesis of Richet, small pieces of tartar frequently break down and enter the ducts, particularly Wharton's duct, in which the calculi are most frequently found, gravitation being responsible.

Bacteria, also, are held to be the essential factor in these cases, Galippe having made cultures with positive results. However, if bacteria alone are the chief factors it would appear that the calculi would be much more common. Obstruction to the outflow of saliva by strictures, resulting in retention and consequent thickening of the saliva, has been offered in explanation. Salivary cysts, however, are less frequent than salivary calculi. In the cases of salivary cysts reported, in only one was there a deposition of insoluble salts and that in a parotid cyst. Loveland³ reports a case of obstruction to Stenon's duct in a woman of middle age which dated back to an attack of diphtheria at 13, this was a case of retention for years without the formation of concretions. Skirving⁴ reports a case of shorter duration with thick and viscid saliva without concretions.

The fact that concretions form more frequently in the submaxillary gland and its duct must be explained either by anatomic or chemical conditions. As factors predisposing to a precipitation of the calcium salts there exists a high percentage of solids and organic matters, a greater degree of alkalinity and a low amount of CO_2 . The sublingual saliva contains more total solids, organic

matter, mucin and a higher degree of alkalinity than the saliva of the parotid and submaxillary glands. The quantities of CO_2 are about equal in all salivas; therefore, if the composition of the saliva should determine the most probable locality for calculus formation, it would be in the sublingual gland and its duct; as a matter of fact the occurrence of a stone in the sublingual gland and its duct is rare. We must then look to the anatomic conditions for an explanation of the greater frequency of calculi in the submaxillary gland and duct. If stasis of the saliva be excluded as an important cause of calculus formation, the length and direction of the duct are of little significance. Foreign bodies are found in Wharton's duct more often than in the others. The following table shows the relative frequency of occurrence in the various glands and ducts:

Wharton's Duct..50	Submaxillary Gland..18	Total ...68
Stenon's Duct ... 6	Parotid Gland 2	Total ... 8
Sublingual Duct.. 6	Sublingual Gland 2.	Total ... 8

It would appear that foreign bodies could enter Wharton's duct more readily than the others on account of its greater size and the location of its orifice. While tartar might often be a determining factor we would be unable to demonstrate it, since its composition is similar to that of calculi. Food particles might easily undergo decomposition and simply add to the percentage of organic matter in the calculus.

The question arises whether a constitutional condition can in any way predispose to calculus formation. If a general cause were at all active, we would expect it to exert an influence upon more than one gland or duct. In only one case have calculi been found in more than one gland or duct in the same person. It appears probable that an increase in the total solids of the saliva may be a predisposing factor. Langley and Fletcher⁵ have shown that the salts of saliva increase directly with the rate of secretion. Ballard⁶ reports a case in which calculi were discharged five years after the patient was salivated during an attack of jaundice. In Roberg's case there is a history of excessive flow of saliva caused by the use of tobacco.

The symptoms of salivary calculus are determined by the size of the calculus, its location, and the occurrence of suppuration. In the absence of suppuration, a calculus may exist for years without much disturbance. There are cases on record in which calculi have existed for 14, 28 and even 40 years. The most characteristic, and usually the earliest, symptom of calculus in Wharton's duct is the so-called "salivary colic" of the French,

characterized by intermittent retention of saliva and accompanied by more or less pain and discomfort. This retention of saliva, with the formation of a swelling in the floor of the mouth and in the submaxillary region, usually comes on when eating and remains for one to several hours, disappearing gradually. It may be made to disappear by pressing upon it, thus expressing the retained saliva into the mouth. This swelling may come and go for years, as in Roberg's case, until suppuration occurs, when the swelling becomes more or less permanent. The retention is not determined entirely by the size of the calculus. Weber⁷ reports a case in which a concretion the size of a mustard-seed caused retention, while there are some cases with a calculus the size of a cherry or date-stone, in which there have been no symptoms of retention.

The patient may be aware of the presence of a hard nodule in the mouth. There is usually some difficulty in chewing, swallowing and speaking; at times chewing and swallowing may be almost impossible; it may be difficult to open the mouth; the swelling in the floor of the mouth may reach the cutting edge of the teeth. Freudenthal⁸ reports a case in which the abscess became so large that death resulted from asphyxiation. The abscess frequently bursts into the mouth, often discharging the calculus also. A cure results if only one calculus has been present. Sometimes the stone causes a pressure necrosis of the overlying tissues and escapes through the opening thus made. In rare cases the calculus may be discharged through the normal orifice of the duct. Winslow⁹ reports a case in which he found a calculus in a swelling directly over the larynx. Several months before, the patient had noticed a swelling underneath the tongue, which had disappeared spontaneously. With suppuration in the duct there is usually infection also of the gland, giving rise to a painful swelling.

When the calculus occurs in the submaxillary gland, the gland enlarges and becomes firm in consistency and tender to palpation. The gland may remain slightly enlarged and tender to the touch for years; it increases slowly in size, and usually becomes more painful. There are periods when the gland swells acutely and becomes very painful, to subside again to its former condition. Eventually a suppurative cellulitis of the neck may supervene, and a diffuse phlegmon involving the greater part of the side of the neck and face develops, resembling a case of Ludwig's angina. Eventually this may subside, to return at a later date. It may burst spontaneously, if not opened. In some cases a fistula results, discharging pus and concretions.

IN 27 cases of fistula of Stenson's duct discharging saliva, as given by Duplay and Reclus,¹⁰ three were caused by calculi. I have not found a salivary fistula of the other ducts or glands caused by calculi.

The constitutional effects of salivary calculi are usually slight. The fungation in the floor of the mouth may resemble carcinoma. The hardness due to retained secretion and inflammation may be analogous to those cases of induration of the breast observed when there is an obstruction to the flow of milk.

Attention might be called to the importance of these cases in the diagnosis of affections of the floor of the mouth. They are to be distinguished from cancer by the absence of infiltration, the mucous membrane being smooth and unaffected, the free mobility of the tumor, and the rarity of primary carcinoma of these glands. The history of the case and the absence of a history of syphilis would aid in ruling out that condition, and it should be distinguished from ranula by its hardness, solidity, general appearance and position.

1. Flütterer—*Medicine*, Detroit, 1896, Vol. II, No. 7, p. 550.
2. Reberg—*Annals of Surg.*, 1904, Vol. XXIX, No. 5, p. 669.
3. Loveland—*Med. Record*, New York, 1890, Vol. XXXVIII, p. 605.
4. Skirving—*Australasian Med. Gazette*, 1887, p. 379.
5. Langley and Fletcher—*Philosophical Trans.*, London, 1889-90, p. 152.
6. Ballard—*Trans. Path. Soc.*, London, 1867, Vol. XVIII, p. 93.
7. Weber—*Trans. Path. Soc.*, London, 1897, p. 121.
8. Freudenthal—*J. A. M. A.*, 1898, Vol. XXX, p. 469.
9. Winslow—*Jour. Eye, Ear and Throat*, Baltimore, 1896, Vol. I, No. 3, p. 13.
10. Duplay and Reclus—*Traite de Chir.*, Vol. 5, p. 396.

Report of two Cases of Presenile Delusional Insanity

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Since Kraepelin described presenile delusional insanity, very little additional literature on this subject has been contributed, probably because it has not been accepted by psychiatrists as a distinct disease-process, but has been considered by some a form of hysteria and by others an evidence of senile dementia. I therefore wish to present two cases which I think are illustrations of what is gradually becoming recognized as a clinical entity.

Kraepelin observed a small group of cases appearing during the involution period of life, which were unlike either melancholia or senile dementia, and which partook in some degree of the characteristics of dementia praecox, without, however, the tendency to grave deterioration seen in the latter. He described them as

being characterized by a gradual development of marked impairment of judgment, by numerous unsystematized delusions of a hypochondriacal and persecutory nature, and by greatly increased emotional irritability.

The psychosis is rare, occurring according to Kraepelin only 10 times in 12 years of experience. It occurs chiefly during the involution period, between 50 and 60 years of age, and most commonly in women. Heredity is a distinct factor. Head injuries seem to have played an important part in both my cases as the symptoms followed immediately, and no other reasonable cause could be assigned. It is highly probable that there is primarily a neuropathic basis and that the process is one of premature senility.

The clinical picture is a varied one. The onset is gradual and characterized by irritability, moodiness, suspiciousness, and discontent. Later hypochondriacal and persecutory delusions appear. These are at first transitory, but soon become more persistent and almost invariably refer to the marital relations with husband or wife. Still later hallucinations of sight and hearing become prominent and are brought forward as proof of the alleged infidelity. A peculiar feature is that the suspected correspondents are not blamed as a rule, but are usually thought to be friends who have been duped, and their complicity arouses no resentment. The consciousness remains unclouded and orientation is perfect, but the judgment is greatly impaired and the patient cannot be made to realize the senselessness of his ideas. The emotional attitude is at first one of depression and often leads to suicidal attempts. Later excitability and irritability become prominent features. Patients talk excessively, make verbose complaints, become easily angered, and very abusive, but are quieted with little difficulty. The conduct is characterized by all sorts of senseless and unreasonable actions. Usually some overt act is committed, leading to incarceration in an institution.

The outcome is unfavorable, mental deterioration although slow is almost inevitable. Temporary improvement may take place, but recurrence is the rule. Isolated and changeable delusions persist, and mild dementia without marked incoherence is the final result.

The diagnosis is not difficult. It differs from paranoia in that the delusions are not systematized nor persistent, and are not based on definite and circumstantial data. Moreover, there is no resentment felt toward the persecutor, and no definite plan of revenge. On the contrary the attitude is one of complacency

interrupted by violent outbreaks of passion and senseless unpremeditated actions. Dementia praecox rarely occurs at this age and is further differentiated by its characteristic emotional obtuseness and the katatonic symptom-complex. From senile dementia it differs in that there are not the great mental and memory defects, the disturbances of apprehension, and the oftentimes expansive delusions of this affection.

Such pathologic findings as have been recorded are probably those incident to senility.

Following are the histories of two cases illustrative of this disorder:

The first is C. K., a man aged 51, whose maternal grandfather and mother were insane. His education has been very limited and he states that he could not learn. He has always been nervous, shy, shiftless, and discontented, and could never retain a position, of which he has held many, longer than a few months. Three years ago he fell upon the ice, receiving an injury to the head, following which he became very irritable and at times excitable and had difficulty in collecting and concentrating his thoughts. Shortly afterward he became very hypochondriacal and somewhat debilitated. Delusions in regard to his wife's enmity and infidelity soon appeared. The idea that she was secretly poisoning him with opium and clandestinely meeting another man became so persistent that he gave up his work, which was at night, and watched the house. Thinking he saw a man leave his wife's bedroom, he entered the house through a window and rushed wildly into the room, brandishing a revolver. His legal commitment followed.

Physical Examination: Upon examination the patient was found to be of medium height and well nourished. His head and face were of a large type; there was no marked asymmetry; and his ears were large and the lobules were undissolved. His palate was broad, flat and well grooved. His forehead was wide and high. Cardiac dulness was normal; the heart sounds were clear and distinct. The pulse was 90, normal, regular and of good volume. There were no areas of impaired resonance, and no adventitious sounds. The patellar reflex was prompt, and that of the tendon of Achilles increased. There was no ankle clonus and no Babinski reflex. The station was excellent; the gait was good; the tongue was large and clean, protruded in the median line, and showed a very fine gelatinous tremor. There was also a tremor of the extended fingers. The eyes were small, the pupils circular, dilated and reacted well to light and accommodation. The abdomen was round and negative. There were no venereal scars; the inguinal glands were beaded; there were no sexual disorders, and no history of the abuse of alcohol or drugs.

At a later interview the patient was markedly euphoric. In talking he resorted to various grimaces expressive of sorrow and pleasure and stated emphatically that he was not insane, but had

consented to his incarceration to prevent family scandal. He repeatedly spoke of hearing friends say his wife was untrue, and cited many peculiar actions on her part. Returning home from work one evening rather earlier than usual, he found her reading a book and she appeared very much alarmed and surprised. At another time, his wife while walking with him carried on a flirtation with a young man. His wife frequently seemed to treat him coolly when he came from his work, and, because he often felt exhausted and sleepy, he thought that she was secretly drugging his food. He thought that a certain bed, which should have been rarely used, was disturbed every morning and suspected, in the absence of any explanation from his wife, that a visitor had slept there. He also suspected that a man had slept in his wife's bed and assigned as his chief reason for thinking so "Because it smelt like it." He could not be convinced of the absurdity of this remark. He then detailed the incidents just previous to his commitment, and insisted that he saw a man in his wife's bedroom. When questioned regarding his attitude toward this man, he displayed no resentment, saying that the fault was all his wife's and that he had no disposition to harm him. The patient stated that he had met his wife's paramour on the street, when that individual turned pale and retreated in the opposite direction. Under pressure of some leading questions, he grew very irritable and threatening, but a few words sufficed to quiet him. The interview was characterized by fits of irritability and emotional outbreaks quite characteristic of presenile delusional insanity. The patient's neurotic taint was shown by his uneasiness. He was constantly assuming new attitudes; there were constant twitchings of his hands and face; and an ever-present tendency to exaggerate his ailments, which were all of a hypochondriacal nature.

He was now improved to a considerable extent. He admits that he might have been mistaken about his wife's infidelity. At any rate he is not unwilling to forgive her for "family reasons." He is well oriented; his memory is unimpaired; and he is contented and a willing worker, but is still subject to emotional outbreaks when talking of his troubles. He seems grateful for the protection afforded him by the hospital, and does not want to leave, seeming to think that he would again grow worse and have to be recommitted.

The second patient, A. E., is a woman, aged 52. Her mother and one sister were insane. The patient received a good education, having graduated from Smith College. She had always been bright and cheerful and never seclusive. She was somewhat of a book-worm, had always been a good entertainer, and took a very active part in all social affairs of the town. Her health had been good until a few years ago when she was thrown from a horse, striking her face, and received quite a severe injury. She was unconscious for a few minutes, but recovered. Her entire nature thereafter seemed changed from a pleasant, amiable, congenial, social person to a suspicious, moody, discontented individual. She began to accuse her husband of being untrue, became

violent, destructive, unmanageable, and made several very feeble attempts at suicide. She was confined to a hospital, remaining there for a few months, after which she improved and was permitted to go home. She did very well until one month ago, when she again became quiet, moody, discontented, and irritable, and complained of nervous twitchings, abdominal pains, vertigo, and malaise. As her husband was a physician, he prescribed a simple bitter tonic which proved distasteful. She then accused her husband of drugging her. Another physician whom she consulted wished to examine her. She objected, giving various senseless reasons. Later she accused her husband and her physician of drugging her and experimenting with her in an attempt to study her case. At another time she charged them with attempting to remove her reproductive organs or to defile her in some disgraceful manner, and said that everyone knew about it and was talking about her. Her husband had a large practice, and she wondered why so many ladies came to his office. Finally, she accused her husband of holding love seances with an unmarried woman. She would peep through crevices and place her ear to the key-hole in her attempt to obtain evidence. During the doctor's absence, she would turn patients from his office. She would have spells of irritability when she would fly into a violent passion and become destructive. At other times she would move suspiciously about the house, glancing here and there, or would enter the office, pick up little scraps of paper from around the waste basket and attempt to place them together. She finally accused her husband of embracing the servant girl in her presence and discharged her with violent threats. As a last resort, she placed both her husband and the unmarried woman under the surveillance of the police, and also employed detectives to follow him. She would lie awake nights and thought she saw the form of a woman and heard the rustle of her dress as she left the bedroom. She would grow very irritable at finding her husband sleeping. All this time the folly of her delusions could not be pointed out to her. Finally her husband was forced to give up his practice. She would then have sensible periods when she would beg forgiveness and would become very tractable, claiming that she had been sick or mistaken, or some power had come over her. At these times she would permit her husband to return to his work, but would soon fall back into the previous condition. She was therefore committed to the hospital a second time.

Physically, the patient was rather tall and slender, but well nourished. Her skin was pale, and the upper incisor teeth projected forward. The cardiac dulness was normal, but the heart sounds were feeble and indistinct. There were no areas of pulmonary dulness, and no adventitious sounds. The pupils were dilated and circular and reacted well to light and accommodation. The face and head were of small type, but there was no asymmetry, although the ears had Darwinian tubercles attached. The patellar reflex was prompt and the station and gait were excellent. The abdomen was full and negative. The breasts were atrophied and

the areolae were pigmented. The uterus was retroverted, and the vaginal walls were relaxed. There was no history of the abuse of alcohol or drugs.

When first seen her greeting was civil, and she related much of her past history. Her narrative was interspersed with outbreaks of emotion, and she became very angry at the alleged infidelity of her husband and what she deemed his outrageous behavior toward her. She could not be convinced of the absurdity of her conclusions, and became incensed at the attempt to do so, petulantly expressing her wish to be left alone. Her narrative contained many exaggerations. She was extremely restless, and had a moderate flight of ideas. She manifested very little insight into her condition, but was well oriented and her memory was unimpaired. During her residence in the hospital, she attended the dances and other amusements, and to a casual observer would not have appeared peculiar. She finally manifested a desire to return to her husband and family, and was discharged improved.

A Report of Two Cases of Cerebrospinal Fever

(ONE CASE COMPLICATED WITH ASCARIS LUMBRICOIDES)

BY M. J. LICHTY, M. D., CLEVELAND

The occurrence of *ascaris lumbricoides* in individuals developing symptoms simulating cerebrospinal fever is perhaps not common, though such instances have been reported, and cases of cerebrospinal fever complicated by *ascaris lumbricoides* are in all probability much less common. In view of this statement it may be well to report two cases of cerebrospinal fever, one of which was complicated with round worms. Both of these cases came under my observation at the City Hospital in April and May, 1903. The patients were Italian immigrants who had left the densely crowded quarters of an emigrant vessel and set foot on American soil within a week or two before admission to the hospital.

Case I: J. N., aged 24, entered the hospital April 12. On account of our inability to speak his language we were unable to learn any of his previous history or symptoms, so his case was studied from objective signs alone. When admitted the patient was half comatose and delirious. His temperature was 104° , pulse 110, and his respirations 26. Some of the positive physical signs noted by Dr Goldsmith, the resident physician, and subsequently by myself, were a hot dry skin, slight cyanosis and some icterus; the *tâche cerebrale* was demonstrable; opisthotonos was quite marked with rigidity of the muscles of the neck and back; the patellar reflexes were exaggerated, though there was no ankle nor jaw clonus. Kernig's sign was present, but Babinski's reflex was not

demonstrable. The pupils were unequal and symmetric, but responded to light and accommodation. The tongue was dry and coated, but there were no sordes. The bowels were costive, but there was no vomiting. At no time was there any skin eruption. The spleen was not enlarged, the liver and kidneys were not palpable, and the heart and lungs were normal. The urine had but a trace of albumin; there was no diazo reaction and no bile present. The Widal test was negative, and there was a leukocytosis of 24,000. The patient's position in bed was peculiar and characteristic. As he lay upon his side with the head retracted and the thighs flexed on the abdomen he was constantly drawing the covers up over his head and became irritable when disturbed either by the nurse and attendants or by any loud sound. With his first evacuation of the bowel it was noticed that the stool was not unlike that of typhoid fever, though in the stool and about the bed pan there were found a few round worms, pinkish in color, six to eight inches long, and having every appearance of the *ascaris lumbricoides*. The case was consequently considered either as one of cerebrospinal fever complicated with round worms, or as a case of round worms simulating cerebrospinal fever. The latter view was the one to which I was most favorably inclined, and the patient was given calomel and santonin together with bromids and cold baths. The second day his temperature went up to 106.4°, pulse 160, respiration 40. On the third and fourth day the temperature remained high, and many worms were discharged from the bowel. On the fifth day the temperature had dropped to 100, and on that day he was taken before the students of the clinic and demonstrated as a case of *ascaris lumbricoides* with about all the symptoms of cerebrospinal fever. The same day, however, the patient was referred to Dr Aldrich who advised and did a lumbar puncture, a procedure which should have been undertaken earlier. About two drams of a cloudy fluid were withdrawn from the canal, and in fairly satisfactory cultures from this fluid were found some of the diplococci of Weichselbaum as well as some pneumococci.

To this treatment was then added iodid of potash in 10 grain doses four times a day. Six days after the first puncture Dr Aldrich inserted the needle the second time, and again withdrew about two drams of spinal fluid. This time the fluid was clear and free from any bacteria. Iodin was not found in the fluid though it was abundant in the urine. The patient remained in the hospital 50 days, during which time until the very last his temperature ran quite an irregular course. A few days after the first puncture and the use of the iodids the temperature ran a much lower course than previously. The more nearly his temperature remained normal the fewer were his nervous symptoms, though there was some opisthotonos and considerable rigidity of the muscles of the neck for three or four weeks. The total number of worms passed in the course of his stay in the hospital was between 45 and 50, and it is quite possible that some escaped notice. Some of these worms were passed late in the course of the disease, and there is still some reason for thinking that they were the cause of

many of his nervous symptoms, inasmuch as the spinal fluid was clear and free from bacteria as early as the tenth day. The great number of worms is rather remarkable, and that they should complicate or at least be associated with an undoubted case of cerebrospinal fever is not a matter of frequent occurrence either. We must not forget that the *ascaris lumbricoides* may be the cause of death. Osler in his text-book calls attention to the specimen of a liver in the Wistar Horner Museum at the University of Pennsylvania. The liver is full of a mass of round worms which were evidently the cause of death. It is a remarkable specimen.

Case II: A. M., aged 20, was admitted to the hospital April 20, 1903, eight days after Case I was admitted. He also had opisthotonos, rigidity of the muscles of the spine and neck, Kernig's sign, and irregularity of the pupils. The reflexes were exaggerated and the glands enlarged. He assumed the same position in bed as that noted in the former patient. He covered himself completely as if hiding from view, and showed irritability with childlike crying whenever disturbed. Examination of all the internal organs was negative on the day of admission, though there was a trace of albumin in the urine. The diazo reaction was negative. There was a negative Widal reaction, and a leukocytosis of 16,000. Two days after admission Dr Aldrich made a lumbar puncture (the same day that the second puncture was made in Case I). He withdrew four drams of fluid which was clear and free from bacteria. Iodin was not found in the fluid, though iodids had been administered previously and they gave the reaction in the urine. Five days after admission the spleen began to show enlargement. It extended two finger-breadths below the ribs, was easily palpable, hard, and tender. It remained enlarged for several weeks, but became softer and less painful. Seven days after admission there appeared on the right forearm, and later on the body, a purpuric rash in the shape of small maculae. This eruption was noticeable for only a few days. The temperature, not high at any time, ran a low and very irregular course. This case may be regarded as one of the mild or intermittent form. It presented most of the typical signs, though the spinal fluid showed no bacteria.

In the study of these two cases it may be well to note or emphasize several features:

1. Cerebrospinal fever may be complicated by other conditions which themselves may cause symptoms similar to it.
2. While lumbar puncture is valuable in the diagnosis and treatment in this condition, negative findings in the fluid are not sufficient to exclude the diagnosis.
3. It is not necessarily fatal if the findings in the fluid are positive.
4. Whether iodids have much or little influence upon the meninges and fluid in this disease may be a question, as they were not found in the fluid of these two cases.

The Medical Department of Western Reserve University

(AN HISTORICAL SKETCH)

BY J. M. INGERSOLL, A. M., M. D., CLEVELAND

President of the Medical Alumni Association

The old township of Chagrin, now called Willoughby, was one of the first towns on the Western Reserve to possess a circulating library. This library aroused and fostered in the pioneers a decided literary interest and a lyceum and debating society was formed. Lectures on historical and scientific topics were given and current questions of the day were discussed.

Then the Willoughby University of Lake Erie was formed, with a regular faculty, board of trustees, president, secretary and treasurer. The medical faculty consisted of H. A. Ackley, M. D., Professor of Anatomy; Amasa Trowbridge, M. D., Professor of Surgery; D. L. M. Piexotto, M. D., Professor of Theory and Practice of Medicine; J. Lang Cassells, M. D., Professor of Chemistry; and William M. Smith, M. D., Professor of *Materia Medica* and Botany.

In 1836, this University had twenty-three students, and five were graduated that year with the title of Doctor of Medicine. This, I think, is the earliest date on which this degree was conferred in the Western Reserve.

A three-story brick building was erected for this University and the founders hoped to build up a great medical college in Willoughby, but after a few years of struggle it was seen to be necessary to move the medical department to a larger town, and Drs Delamater, Kirtland, Cassels and Worcester, who were then members of the faculty, favored Cleveland, but Dr Starling, who owned a controlling interest, favored Columbus, and so the medical department was moved to Columbus and Starling Medical College was founded there.

The other physicians went to Cleveland, and as they did not wish to wait for a charter, which was the only legal basis for the formation of a new institution, they applied to Western Reserve College at Hudson for the privilege of organizing as the Medical Department of Western Reserve College. This privilege was granted, and in November, 1843, The Cleveland Medical College began its long and honorable career.

The first faculty was composed of the following men: John Delamater, M. D., Professor of General Pathology, Midwifery and Diseases of Women and Children; Jared P. Kirtland, M. D.,

Professor of Physical Diagnosis and the Theory and Practice of Physic; Horace A. Ackley, M. D., Professor of Surgery; J. Lang Cassels, M. D., Professor of Materia Medica, Pharmacy and Botany; Samuel St. John, M. D., Professor of Chemistry and Medical Jurisprudence; and Noah Worcester, M. D., Professor of Pathology and Physical Diagnosis.

These men were, all of them, strong characters. They had crude materials to work with, but they knew how to use them and obtained remarkably good results. They were also broad-minded men, and some of them became eminent in other scientific fields besides that of medicine.

Professor Kirtland did much valuable research work in natural history and published many articles in the scientific journals. In 1829, while studying the freshwater mussels, he found that they had never been correctly described. He published the result of his study of the mussels and was severely criticized by some naturalists, but Agassiz recognized the correctness of his observations and sustained his conclusions, and a little later they were generally acknowledged, both in this country and in Europe.

Professor Cassels was a noted geologist, and made numerous geologic surveys for the United States Government. In 1846, he spent the summer coasting along the south shore of Lake Superior in a bark canoe with two Indian guides. He studied the deposits of iron in this region and took squatter's possession of one square mile of the iron territory for the Cleveland Iron Company. He was the first geologist who visited this region and his report of its wealth was received with incredulity at first but subsequently the value of his discovery was confirmed, and one of the richest iron regions in the world was opened up and a large part of the importance and wealth of the city of Cleveland was made possible.

Sixty years ago the first class graduated from this college, and the degree of Doctor of Medicine was conferred on 22 men. In the same year, 1844, the old college building was erected on the corner of St. Clair and Erie Streets, and since then this ground has been continuously occupied by the Medical College.

The annual announcement for the session of 1848-9 states that, "A building sixty by ninety feet on the ground and four stories high, believed to be more spacious and commodious than any in the country (occupied for similar purposes), furnishes ample accommodations for Lecture rooms, Anatomical rooms, Anatomical museums, Library, Cabinets, private rooms for the

Faculty and rooms for those who are necessarily provided for in the building." Evidently the Faculty were proud of their building, and well they might be, for at that time it was one of the most imposing structures in the city.

Many of us still remember the old building, with its pillars and cupola and the round windows in the fourth story. These round windows were called Ackley's port-holes because at one time, when a stolen body had been brought to the college building, a threatening mob gathered in front of the building and demanded that the body be returned to the relatives. Professor Ackley opened one of these windows and leaning out, with a shot gun in his hands, informed the mob that if they dispersed at once the body would be returned but if they did not he would provide more material for the dissecting-room. The mob scattered and the body was returned.

Nothing is said about the requirements for admission to the college in the old catalogues, but the candidate for the degree of Doctor of Medicine must have pursued medical studies for three years, attended two full courses of medical lectures, composed and deposited with the Dean a satisfactory thesis on some medical subject accompanied by \$20 as a graduating fee. The thesis and fee were returned if the candidate failed to obtain the degree. He must also produce satisfactory testimonials of good moral character and pass an examination by the Professors in the presence of the Censors.

The annual course of lectures began on the first Wednesday in November and continued for 16 weeks. Six lectures were given daily, except on Wednesday and Saturday. These two days were devoted to medical and surgical clinics and some rooms in the college building were provided for patients who could not be removed, so that the college building was also a hospital to a certain extent. The students of these early days were not given any laboratory training. The department of pathology was furnished with "a large and elegant collection of paintings and colored plates, illustrative of pathological and topical anatomy, diseases of the skin and veins." The chemical course was "rendered full and effective by the extent and completeness of the apparatus, which is adequate to the demonstration, not only of the principles of Chemistry proper, but also Caloric, Light, Electricity, Galvanism, Magnetism, Electromagnetism and Pneumatics." The principles of surgery were "exemplified by the aid of a large collection of instruments and apparatus appropriate to this branch."

The fee for each annual course of lectures was \$50, but a

promissory note payable in 12 months for \$56 dollars, signed jointly with some responsible person, would be accepted.

Such, in brief, were the opportunities offered by this College to the medical students 60 years ago. To us they seem rather primitive and inadequate, but in those early days they were among the best that could be obtained anywhere in this country, and the high standard, with which this College began, has been constantly maintained. In 1868 the length of the course of lectures was increased to 17 weeks and in 1871 to 20 weeks. In 1875 the old Cleveland City Hospital, which contained 59 beds, was used for clinical purposes. In 1878 the length of the course was made 24 weeks, and in 1888, six months, and three courses of lectures were required for graduation. Laboratory work in Chemistry and Pathology was added to the curriculum in the same year. In 1887 the present building was given to the College by John L. Woods and a preliminary entrance examination was instituted.

In 1895 the length of the course was increased to eight months and laboratory work in Histology, Bacteriology and Physiology was added, and in the following year a four-years' course was made obligatory. In 1881 Charity Hospital and its Maternity Department, and in 1896 the present City Hospital were added to the clinical field.

In 1898 the new Lakeside Hospital was occupied, the chemical laboratory was erected and laboratory instruction in Pharmacology was added as a required course. In 1901 the laboratory of Clinical Microscopy was erected and equipped. In the same year the requirements for admission to the College were made to include the Junior year in an academic institution of recognized collegiate rank.

Thus the Medical College has grown and advanced until it occupies the enviable position of being one of the three medical colleges in this country which require at least three years of college work for admission. The laboratories have been increased and improved and competent men are in charge of them. The hospital facilities have grown enormously and the College now has 900 beds under its control for clinical purposes, besides its dispensaries and maternity hospital.

Surely our Alma Mater is one of which we may be justly proud, and deserves our hearty and enthusiastic support. Its future growth and welfare is dependent, in a large degree, upon us, its alumni. Let us each one strive to do all in our power for its continued advancement and prosperity.

The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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EDITORIAL

The New Regius Professor of Medicine

The acceptance by Dr William Osler, of Baltimore, of the Regius Professorship of Medicine in the University of Oxford, is at this time no news to our readers. The announcement has been made, and we are slowly adjusting ourselves to the knowledge that America is to lose Dr Osler in the spring of 1905.

For the first time in the history of this Professorship the English University authorities have crossed the sea to select an appointee for this distinguished post. Surely no higher tribute than this could be paid to Dr Osler, and, effacing for the moment the regret in the loss which his departure must mean, we would offer the heartiest congratulations of our own community in this honor so fittingly bestowed.

We know of no other instance in which the admiration, the respect and the loyal devotion of the profession of an entire continent have been so universally given to a single leader as to Dr Osler.

So great has been his influence in molding the underlying forces in American medical life, and in the larger relationships bearing directly upon National and State questions of medical

legislation, that the good already accomplished must remain a constant inspiration for the future, and no one can foretell what may be the ultimate results in American medical and civic life attributable to his influence.

As one of a host of communities to whom Dr Osler's departure comes as a personal loss may we, then, add our heartiest God speed.

Advances in the Prophylaxis and Treatment of Tetanus

In its issue of September 3, 1904, the *Journal of the American Medical Association* publishes some very interesting and carefully compiled statistics of the mortality from tetanus, comparing the death-rate of July, 1903, and July, 1904. It was found that the number of deaths this year was only 105 as against 415 a year ago—surely a splendid improvement. In Ohio the decrease was even more marked, there being 67 deaths in 1903 and but nine in 1904. In endeavoring to account for this, after carefully reviewing the evidence from all possible sources of information, the conclusion was reached that the decrease was not due to unusually unfavorable conditions for the tetanus bacillus nor to its unusual infrequency, as was conclusively proved by the larger number of cases of tetanus this year from other causes than celebrating the Fourth, as from nail wounds and compound fractures. Rather, the decrease is attributed to two causes—fewer wounds received, and better treatment of those that were received.

The first of these two causes was the result of the campaign against tetanus started by articles in medical journals and the resolutions of medical societies, a movement taken up later by the daily press, and terminating in the education of the laity. This was followed by the civic legislation controlling the sale of blank cartridges and pistols to minors, and the development of a public spirit for the enforcement of the law which caused prosecutions for such illegal sales of firearms.

We commented editorially in our last issue on the delayed and ineffective legislation in this direction of this city. According to the JOURNAL report, other cities met the issue more successfully, Toledo and St. Louis showing especially good results. The writer of the article quoted also points out that a surer solution would be legislation against the manufacture of the dangerous explosives rather than merely against their sale.

LOWERED MORTALITY

With regard to the second cause of lowered mortality, the better treatment of wounds likely to result in tetanus, many

interesting articles have been appearing recently showing advance along two lines, the prophylactic use of antitetanic serum as a routine in all suspicious wounds, and the good results from the intraneural injection of the serum in developed cases. Statistics of over a thousand cases treated prophylactically have been collected without a single one resulting in tetanus. Quoting again from the St. Louis statistics, last July of 56 cases treated in the ordinary way, 16 resulted fatally; this year of 36 similar wounds treated prophylactically all recovered. Another instance is the record of the Harlem Hospital in which over 100 pistol wounds were treated by the prophylactic use of serum without a single case of tetanus developing. In view of these convincing figures it would seem that many who have doubted the value of the prophylactic treatment must modify their views. Another prophylactic measure has been suggested in the *Presse Medicale*, by Letulle, who washes out the wound for 15 minutes with boiled water and then thickly dusts with dried pulverized antitetanic serum and covers it with gauze. This is repeated daily until healing is complete; the procedure is called the "Calmette method."

INTRANEURAL INJECTION

The intraneural injection of serum is no new method of treatment, but as the result of greater experience it has this year shown much more successful results. Some time ago from experiments at the Pasteur Institute in Paris carried out to determine the action of the tetanus toxin, it was shown that the main effects of the poison were exerted on the spinal ganglia; further that the toxin reached the cord by means of the motor nerves through which it could only travel centripetally, entering the nerves by means of the muscle end apparatus. It was also demonstrated that it could not travel at all through the sensory nerves. Experiments on animals proved that a fatal dose of the toxin after being injected into an extremity could be checked by intraneural injections of antitoxin.

Following this animal experimentation reports have begun to be published of successful results in men. Among them is an interesting case contributed to the *Medical Record*, of July 2, 1904, by Dr Rogers, of a boy who developed tetanus following a punctured nail wound of the foot. The anterior crural and great sciatic nerves were exposed and held on the finger while the needle was several times inserted into the nerve, one-half dram of the serum being injected into each nerve. Lumbar puncture was then performed and a dram and a half injected into the spinal canal. A marked improvement in the case followed imme-

diately with eventual recovery. Dr Rogers believes it necessary to actually wound the cord or nerve trunk with the needle to insure proper absorption of the serum, as simple injection into the subarachnoid space is no more efficient than subcutaneous injections. He further states that injections into the ventricles are absolutely valueless as previous experiments proved that the toxin cannot diffuse downward, and the antitoxin must follow the same paths as the toxin.

If corroborative reports of equally good results following the intraneural administration of the serum continue to appear, the worth of the antitoxin, which up to now has been under question owing to our ignorance of the most efficient way of using it, will be established, and the prognosis of a disease from which recovery has been the exception will be much brighter.

The Ohio State Hospital for Epileptics

We are confident that the large majority of the profession of Ohio, at all cognizant of the work which has been accomplished at our State Hospital for Epileptics at Gallipolis under the present administration, cannot fail to regret the recent exploitation of the affairs of this institution in the daily press. It is one of the most unfortunate conditions in the management of our public charitable institutions that there is always present the threatened menace of interference on the part of some one or more dissatisfied individuals.

Of all public institutions it may be said, we believe, without fear of contradiction, that those having the care of our State wards, whose condition is to be pitied beyond that of all other public wards, should be governed solely in the best interests of the patients, absolutely independent of all political control and with an eye single to the greatest good of the greatest number of these poor unfortunates. We are unwilling to believe that any other ideal than this has prevailed at Gallipolis.

The fair name, the purity and the discipline of our medical institutions can only be maintained by a well balanced, careful and conservative management untrammelled by political influences of any sort.

To say that we regret the attempts so repeatedly made to discredit the work which has been accomplished at Gallipolis is to express but mildly our feeling of disappointment.

We are confident that the best judgment of the majority directly interested in the control of the Hospital will ultimately prevail in the investigation into the affairs of the Hospital, which we are told is to be made, and we trust that Dr Ohlmacher will be fully vindicated of the charges which have appeared in the lay press and sustained in the work he has so ably carried on.

The right always triumphs, but it is indeed discouraging to constantly encounter opposition from outside in the management of an institution involving so many difficult situations; and every such attack must mar for a time the efficiency of its service. Is the time not at hand when our public charities can be safeguarded against upheavals of this character?

Politics in State Institutions

In Illinois the question of politics in State institutions has become a campaign issue. A candidate for governor has forcibly expressed himself in his recent speeches, from one of which, before a Chautauqua gathering, the following is quoted in the *Illinois Medical Journal* and reproduced here:

* * * * * "And here let me say, with all the energy I can command, that whatever their (the State institutions) objects may have been or are, they were never intended to be prostituted to political ends or made hatching grounds for political schemes or headquarters for political clubs.

The spoils system that has fastened itself of late years upon the body politic of the State is subversive of discipline and inimical to the interests of the wards of the State. However competent a superintendent may be, under this system he is powerless to bring about results, enforce obedience or manage his institution with success. Called to account for his misdeeds the subordinate insolently replies that he gets his place from a power as high as the superintendent, because he regularly contributes to the common campaign fund, and not for his ability to perform the delicate work assigned him, not for his zeal, industry or caution, but as a reward for political services rendered and the political influence he still wields. The general service thereby suffers, discipline is destroyed, the wards of the State are neglected and abused, the money of the taxpayers is frittered away and general demoralization ensues. * * * * *

But such things (model institutions) can never be under a system where superintendents are appointed for political generalship, attendants for their work at primaries and polls, employes for the alacrity with which they contributed, and advisory officers

farm out the lives of dependent people as patronage to the faithful few, and dictate appointments on the basis of political pull."

These expressions from a gubernatorial candidate must strike a responsive chord in the medical profession of Illinois which has impotently protested against the policy of the out-going governor who invaded and degraded the State institutions in the fruitless effort to create a political machine.

Society for the Study of Alcohol and other Narcotics

We desire to call attention to the letter published elsewhere in this issue of the JOURNAL, from the Secretary of the American Medical Society, for the Study of Alcohol and Other Narcotics.

This association has been organized with a view to systematizing the methods of efficient control of the greatest evil of the day, the abuse of alcohol and various drugs, and the equally dangerous abuse and use of the many so-called specific remedies or nostrums. Among the existing evils with which we must contend, there are few, if any, of more serious character than these which it is the primary object of this association to control.

If the present empiric treatment of alcoholism and drug habits by secret remedies can be so curtailed by efficient legislation as to make it impossible for any group of individuals to establish a so-called hospital for their treatment (in reality a stock company with a view to profit), then a most desirable reform will have been accomplished. So long as it is possible for a group of individuals, or any single individual, to profit through the moral weakness of our unfortunate fellow men, we should leave no stone unturned in an honest endeavor to check this growing evil.

The movement underlying the organization of this association includes as well the scientific study of the alcoholic problem. That united effort can always accomplish more than individual is self-evident, and we earnestly enlist the support of the organized profession in the movement to control this difficult and menacing problem.

Correspondence

Hartford, Conn., Sept., 1904.

To the Editor of CLEVELAND MEDICAL JOURNAL:

DEAR SIR:—The American Medical Society for the Study of Alcohol and other Narcotics was organized June 8, 1904, by the Union of the American Association for the Study of Inebriety and the Medical Temperance Association. Both of these societies are composed of physicians interested in the study and treatment of inebriety and the physiological nature and action of alcohol and narcotics in health and disease. The

first society was organized in 1870, and has published five volumes of transactions and twenty-seven yearly volumes of the *Quarterly Journal of Inebriety*, the organ of its association. The second society began in 1891 and has issued three volumes of transactions and for seven years published a *Quarterly Bulletin* containing the papers read at its meetings. The special object of the union of the two societies is to create greater interest among physicians to study one of the greatest evils of modern times. Its plan of work is to encourage and promote more exact scientific studies of the nature and effects of alcohol in health and disease, particularly of its etiological, physiological and therapeutic relations. Second, to secure more accurate investigations of the diseases associated or following from the use of alcohol and narcotics. Third, to correct the present empirical treatment of these diseases by secret drugs and so-called specifics and to secure legislation, prohibiting the sale of nostrums claiming to be absolute cures containing dangerous poisons. Fourth, to encourage special legislation for the care, control and medical treatment of spirit and drug takers. The alcoholic problem and the diseases which center and spring from it are becoming more prominent and its medical and hygienic importance have assumed such proportions that physicians everywhere are called on for advice and counsel. Public sentiment is turning to medical men for authoritative facts and conclusions to enable them to realize the causes, means of prevention and cure of this evil. This new society comes to meet this want by enlisting medical men as members and stimulating new studies and researches from a broader and more scientific point of view. As a medical and hygienic topic the alcoholic problem has an intense personal interest, not only to every physician, but to the public generally in every town and city in the country. This interest demands concentrated efforts through the medium of a society to clear away the present confusion, educate public sentiment, and make medical men the final authority in the consideration of the remedial measures for cure and prevention. For this purpose a most urgent appeal is made to all physicians to assist in making this society the medium and authority for the scientific study of the subject. The secretary will be pleased to give any further information.

Very truly yours,

T. D. CROTHERS, Secretary.

Department of Therapeutics

CONDUCTED BY J. B. MCGEE, M. D.

Acetozone: *Merck's Archives*, for August, asserts that whether or not it is possible to attain intestinal asepsis is of course a debatable question, but it is a well-established clinical fact that intestinal antiseptics do good and modify the course of enteric diseases of bacterial origin, notably typhoid fever, dysentery and summer diarrhea. The experiments of Novy and Freer (contributions to *Medical Research*) with benzoylacetylene-peroxid (acetozone) showed that this substance is extremely germicidal to the organisms found in the alimentary canal. Its administration to rabbits resulted in the "practical sterilization of the contents of the stomach." Other experiments showed that enzymes and toxins are also destroyed or rendered inert by acetozone. Further

study demonstrated not only the remarkable germicidal power of acetozone, but also the fact that its aqueous solutions may be given internally, and even injected intravenously without harm. From these data it may be inferred that this substance ranks among the most powerful germicidal agents, while it exerts no harmful effects upon the human organism, and may therefore be employed as a therapeutic agent in the treatment of summer diarrhea and other infectious enteric diseases with the best effects. There seems to be abundant evidence to warrant the suggestion that acetozone solution should prove most valuable in clonic flushing, as it is entirely free from the danger that attends the use of large quantities of even a weak solution of mercuric chlorid, and for that reason may be used fearlessly.

Typhoid Fever: Carter S. Cole, in the *Medical News* for July 23, considers in the treatment of typhoid fever, (1) nutrition, (2) stimulation, (3) medication, (4) antipyresis. As regards medication, he uses no drugs at all. At the outset he likes to have the intestinal canal thoroughly cleansed, usually by a dose of calomel followed by a saline cathartic; after this he seldom if ever finds it necessary to use any catharsis at all, the bowels being moved either daily or every other day by the use of a simple enema. His experience with the Brand method has not been as satisfactory as with sponging. He concludes that (1) fever is a necessary part of the disease and varies according to the week in which it occurs. (2) We cannot change the type although we may control the fever. (3) The use of coal-tar products for the reduction of temperature is seldom if ever desirable, but the use of water internally and externally is a necessary part of the treatment of the disease. (4) Nutrition must be liquid and must be adapted to the individual case. Lastly, medication plays a very small part in the management of the disease and is only used to meet special indications.

Arteriosclerosis: O. T. Osborn, in the *New York and Philadelphia Medical Journal* for August 20, asserts that whatever may be the primary cause of arteriosclerosis, it is certain that any treatment of the condition, to be successful, must aim to diminish the high blood-pressure. This can be well accomplished by thyroid extract in small doses if we believe there is evidence of diminished thyroid secretion, and it must be remembered that any small dosage of the iodids will stimulate the thyroid gland to greater activity, and hence the long known value of this drug in arteriosclerosis. If possible all severe muscular activity and all nervous strain or anything that tends to increase the peripheral tension should be prevented. Large quantities of liquids, even water, are not often good treatment, as they tend to overfill the blood-vessels. A modified, diminished mixed diet, alcohol free if possible, without coffee and tea, spices, or any drug, such as strychnin or digitalis, unless there is actual cardiac failure, will give the best results. The great value of rest, especially mental, must not be forgotten, whether this be a rest for so many hours each day, or a rest of two or three days weekly, or a rest of a month or two annually; certain it is that this increased tension, when allowed periods of intermittency, may not develop the disease of arteriosclerosis. The moderate use of tobacco after 30 years of age may be of benefit to these hypertension cases rather than otherwise. In cases of arteriosclerosis

without kidney or liver lesion, in a patient 60 years of age or more, it is quite possible that small doses of alcohol, especially at night, may cause sufficient vasodilation to give him some bettering of symptoms that may be present, but this same improvement can generally be caused by nitroglycerin in small doses even as little as 1/400 grain three or four times a day. He states as a possibility that in the future one of the suprarenal glands might be removed or its artery tied in gout and arteriosclerosis.

Cocain :

Henry B. Hollen, in *Medicine* for August, states concerning the use of cocain as a local anesthetic that owing to the toxicity of cocain a restriction of the amount absorbed is demanded. The hemostatic action of adrenalin adapts it as an adjuvant to the analgesic, counteracting its toxic effects by diminishing its absorption and diffusion. For this purpose it may be applied singly, immediately preceding the anesthetic, or, better still, combined with the latter in various proportions. Honigman adds one to five drops of adrenalin chlorid solution 1-1000 to each cubic centimeter of a one percent cocain solution, and others use a mixture of nine cubic centimeters of a five-tenths percent solution of cocain with one cubic centimeter of a 1-1000 adrenalin solution. The adrenalin not only facilitates cocainization in those cases in which it is employed but serves another and an important function in accomplishing the control of hemorrhage. These two substances go hand in hand, and it is remarkable how one reenforces the other. As to the use of cocain in the nose and throat many mishaps have resulted from its use in these localities. First, the employment of cocain should be avoided in those protracted affections which necessitate prolonged medication to obtain results, as, for instance, hay fever. The danger of "habit" forming in these cases must be apparent. Secondly, in view of the toxicity of cocain the quantity employed should be restricted, each application being well directed and its effects carefully observed during a period of intermission. Topically it is generally advisable to use a spray, the cocain content of which does not exceed two percent; a five percent solution is sufficiently strong for application on a probe. Thirdly, adrenalin solution should be combined with the analgesic solution, or should immediately precede cocainization. Fourthly, cocain should be cautiously administered in cases weakened by age or illness, and in those patients in whom the circulation is poor.

Alcoholism :

Joseph Collins, in the *Therapeutic Gazette* for August, summarizes the indications in the treatment of delirium tremens as follows: (1) To maintain the patient's vitality, (2) to overcome the motor unrest and emotional agony, (3) to secure sleep. He first gives the average patient 15 grains of gray powder, followed in six hours by a saline and copious draught of hot water to facilitate the action of the latter as well as for its diuretic and diaphoretic effects. The proper feeding of the patient is one of the most important features of the treatment. Predigested, partially digested concentrated nourishment administered hot by the stomach or rectum, or both, is what he depends upon to maintain the vitality of the average severe case of delirium tremens rather than stimulant. He rarely uses alcoholic stimulant in any case of uncomplicated delirium tremens, however grave. When complicated with pneumonia he gives it freely if indicated. The second indication, to

overcome motor unrest and emotional agony, is accomplished by the use of the hot bath, the hot pack and the administration of hyoscin hypodermically. Of these measures the first is by far the most important. Of course it is easy to restrain a patient with delirium tremens by giving him a quarter or a half grain of morphin hypodermically, especially if 30 grains of the bromids or 15 or 20 grains of chloral are given at the same time. Collins is convinced, however, that such drugging does more harm than good by adding to the patient's asthenia, and to the hemolysis which exists in nearly every case. The third indication, securing sleep, is accomplished partly by drugs and partly by hydiatic procedure. The drugs used are trional, veronal, and paraldehyd, and their frequency of use is in the order mentioned. While veronal is almost an ideal somnifacient it sometimes produces motor incoördination, especially of the lower extremities, but its sleep-producing effects are greater than those of trional, when given in 10 or 15 grain doses. He has the best results from trional given in 10 doses every hour with large draughts of hot water. Paraldehyd is the most reliable of all hypnotics. It is not pleasant to take, and he does not use it as a routine, but when other hypnotics fail he generally finds it efficient. Wm. Lee Howard, in the *Medical News* for August 6, states that in the treatment of dipsomania, it is astonishing what amount of strychnin can be given to these cases when the psychic explosion takes place. The drug seems to be utilized in the physiologic economy for it can be pushed in these cases to what would be an extremely dangerous point in a normal individual, without any signs of intolerance. He keeps his patients on this drug for two years or more, having them take one-thirtieth of a grain t. i. d. for a month, then dropping the drug for six weeks, to take it up again for another month. They are taught to avoid proteids and to aid elimination to prevent the attacks.

Veratrum Viride: J. S. Hammond, in the *American Journal of Obstetrics and Diseases of Women and Children* for June, quotes A. Capthorn Smith as to the value of veratrum viride in eclampsia, and states that his experience for the last 14 years has been the same. He states that 10 drops of the tincture of veratrum viride hypodermically will relax the spasm in 10 minutes; we cannot see the arterioles dilating under its influence, but we know that it is dilating them by our finger on the pulse; we feel the pulse coming down from 160 to 60 or even 40, growing softer as it slows. Whether the heart beats are 160 or only 40 is not so very important, except that there is a let up in the spasm of the whole vâsomotor system, which is a matter of life and death. In the three cases in which he had used it there was no convulsion later than 15 minutes after the first injection. Dr De Cotret, director of the largest lying-in hospital in Canada, has employed this remedy in over 40 cases without a death. Dr Smith gives a hypodermic of morphin followed in five minutes by a hypodermic of 10 minims of tincture of veratrum viride, repeated every 10 minutes until the convulsions stop or the pulse comes down to 40. Then give a quart of salt solution by enema; it will be quickly absorbed by the rectum, and as the spasm in the arterioles of the kidneys relaxes, the water will rush into them, and in half an hour there will be a copious secretion of poison laden urine. No chloroform will be needed; and no chloral, which latter drug has caused so many deaths ascribed to other causes; no *accouchement force*.

Infant Feeding: T. W. Kilmer, in the *Medical News* for August 13, states that the problem of the artificially fed baby is usually a complex one. In cases in which the baby has been improperly fed its stomach should be washed out daily with warm water, especially if there is much vomiting. It is astounding in this condition to see the mucus that can be washed away from a baby's stomach. Stomach washing is done by means of a soft rubber catheter (20 F), a connecting-tube of rubber, and a glass funnel. Also give the baby's bowels a good flushing with a decinormal salt solution; use a long soft rubber rectal tube. It has been his plan to start these babies on a weak cereal water, such as barley water, for a few days, until their digestive apparatus is in better condition to assimilate food. Condensed milk is one of the worst curses upon a community of babies. The baby for a time gets big and fat. We have all seen these square-headed, feeble-boned, open fontanelled, big, fat, rickety babies with a rosary on their ribs that can be seen across the room. So much against condensed milk. Now a word or two for it. It is unquestionably one of the best foods to switch off on if baby's stomach becomes a little upset, as it were, from too much proteid. For a short trip or in a district where good cow's milk is not procurable, condensed milk answers admirably. He concludes that (1) the artificial feeding of babies is not the simple and easy problem which some of our lay friends seem to regard it. Every baby is a law unto himself and should be fed as an individual. (2) The general public should be taught that they should not and cannot feed the rising generation on "any old thing," and in any way that they choose. A baby's food should not be experimented with by the laity. It is the baby's life, and parents have no right to trifle with it.

Hypnotics: V. Coblentz, in the *Therapeutic Gazette* for May, summarizes the uses of the sulphone group of hypnotics represented by trional, sulphonal and tetronal, the last named, however, never having come into prominence. Concerning their action, sulphonal acts more slowly than trional, which is due to the fact that the latter is more easily absorbed and decomposed in the organism. The sleep produced by both resembles closely the normal as regards the heart action, arterial tension, respiration, and gaseous exchanges. Certain precautions should be observed during their continued use. Both sulphonal and trional should be given in some warm fluid as in this way they act much more promptly and cumulative effects are prevented. During the continued administration attention should be given to the bowels so that the patient has at least one free movement a day, and the alkalinity of the blood should be increased by the administration of alkalies, such as bicarbonate of sodium or alkaline mineral waters. Haberman suggests that trional is advantageously administered in carbonated water in which it is completely soluble. This method is said to produce a rapid effect and avoid sequela. In view of the universal use of these hypnotics during the past 10 years, it is remarkable that by-effects are exceedingly rare, and the only effect to which attention has been directed is the occurrence of hematuria, especially under the use of sulphonal. This, however, cannot be directly attributed to the hypnotics, but seems rather the result of an idiosyncrasy. These drugs are frequently employed in too large doses and 15 grains of trional is generally a sufficient dose. Hedonal in doses of 1 to

2 grams is of chief value in the milder forms of sleeplessness, and also in mental diseases without marked excitement. Veronal is the most important recent hypnotic, its main indication being in the large field of simple insomnia and also in that of nervous affections, if not associated with marked excitement or pain.

Dosage:

In *Medicine* for June, A. M. Fernandez de Ybarra states that from the remotest periods in the history of our profession it was known that certain drugs given in large doses produce an entirely different effect to that which they give rise to when administered in small doses. He refers to aloes which in one-fourth to one grain doses is a very valuable tonic to the alimentary canal and in the usual or official dose of five to twenty grains is a cathartic. One-half to one grain of ipecac soothes gastric irritation, while the regular or official dose of 20 to 25 grains is an emetic. He gives a list of drugs whose action differs in small and large doses, and continues that we often hear of a practitioner who obtains most excellent results with a certain remedy in the treatment of a special disease. We try the same remedy in that special disease and fail to get good results. We infer that the practitioner has exaggerated or possibly not told the truth because we are ignorant, perhaps, of the many little details relating to both patient and medicine which may modify its action.

Academy of Medicine of Cleveland

The regular meeting of the Academy is held on the third Friday of each month.

At the twentieth regular meeting of the Academy held at 8 p. m., Friday, September 16, 1904, at Chamber of Commerce, Public Square, the following program was presented: "Some Common Errors in Obstetric Practice," Dr R. E. Skeel; "The Surgical Treatment of Paralytic Deformities with Demonstration of Cases," Dr W. G. Stern.

The following applications, approved by the Council, are hereby published: For Active Membership—Drs Wilber H. Appleton, Wm. W. Cogwill, Henry O. Feiss, John Mohr, George W. Weitz. For Non-Resident Membership—Dr Robert C. Parrish, Youngstown, Ohio.

Physicians attending the regular meeting of the Academy in the Chamber of Commerce, may be reached by telephone number Main 1032.

Book Reviews

The Clinical Study of Blood Pressure. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetric Practice with a Summary of the Experimental and Clinical Facts Relating to the Blood Pressure in Health and in Disease. By Theodore C. Janeway, M. D., Lecturer on Medical Diagnosis, University and Bellevue Hospital Medical College, etc. New York City. 75 illustrations in the text, many in colors. D. Appleton & Co., New York and London, 1904.

This work is divided into three subdivisions, Part I, physiologic, considering the direct measurement of blood-pressure and blood-pressure in the normal animal. Part II, technical, treats of the indirect measurements of blood-pressure, and the modern sphygmomanometer, and Part III, clinical, takes up the study of the blood-pressure in man, in disease and in

surgical and obstetric conditions. This really admirable work covers in an extremely interesting and thorough way the whole subject of blood-pressure, the factors determining its variation and the various methods available for determining accurately its degree under normal and pathologic conditions. So much ground has been covered along this line in recent years that the ordinary observer should be grateful for the careful and systematic presentation of the subject within the compass of a volume of this size and character which makes available the conclusions of a large number of workers in this special field. The author has carefully gone through the existing large bibliography and judicially weighs the evidence *pro* and *con* in regard to the still disputed points which have arisen as a result of the study of the blood-pressure in man and in animal experimentation. His own exhaustive observations are evidence of the thorough way in which he has covered the whole ground, and we are confident that Dr Janeway's plea for the more general use of the sphygmomanometer in clinical work will not be in vain. Extended reference is made to those earlier investigators both abroad and at home, and in this country appreciative credit is given to Crile, of Cleveland, and Cushing, of Baltimore, who have done so much to arouse interest in, and to bring this subject to the attention of the profession in its most important light. Recognizing the errors inherent in the earlier instruments introduced for the measurement of blood-pressure, due in a large measure to the narrow cuff band of the armlet and to the flexible tubing, Dr Janeway has himself devised a portable sphygmomanometer with a wide cuff band and heavy tubing which we know from practical observation to be an extremely reliable and satisfactory instrument. This volume is essentially one with *raison d'être* and one with which every student and physician should become familiar, and the author is to be congratulated for the way in which he has brought together and presented the present knowledge concerning the study of the blood-pressure in man.

Progressive Medicine, Vol. II, June, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 334 pages, 47 illustrations. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

Volume II of Progressive Medicine, for June, 1904, well maintains the standard of the previous volumes of this excellent work. It opens with a review of the surgery of the abdomen including the subject of hernia, by W. D. Coley, of New York, which includes a resumé of all the recent work upon the liver, spleen, and, more interesting to us all just now, the pancreas. Gynecology is considered by John G. Clark, of Philadelphia. Dr Stengel contributes a really valuable review of the diseases of the blood, diathetic and metabolic diseases, diseases of the spleen, thyroid gland and lymphatic system. Particularly interesting is the review devoted to diabetes. There is also a brief description of the conditions described as ochronosis, first studied by Virchow in 1866. It is interesting to note that there have been but nine cases reported up to the present time, the clinical history of the last two being given by Osler in the *London Lancet* for January of this year. The concluding review of this volume is the consideration of ophthalmology by Edward Jackson. Among similar works there is, perhaps, none

which covers the subjects treated of in the same thorough way, thus offering to the reader really exhaustive monographs upon special topics. In its new dress and less expensive form, *Progressive Medicine* should prove even more popular in the future than it has in the past.

A *Hand-Book of Surgery for Students and Practitioners*, by Frederic Richardson Griffith, M. D., Surgeon to Bellevue Dispensary; Assistant Surgeon at the New York Polyclinic School and Hospital; Assistant Genito-Urinary Surgeon at the New York Hospital, etc., etc. 417 illustrations, 580 pages. W. B. Saunders & Co., Philadelphia, New York and London, 1904.

The purpose of this book, as stated in the preface, is to present a brief outline of surgery as a working guide for students and practitioners, giving the essentials of the subject in as concise form as is consistent with clearness. The author has succeeded admirably in doing this, and mentions the latest accepted methods in operative treatment and therapeutics. The book is attractively gotten up, the text and illustrations are good, and the work is above the general average of manuals.

The Doctors' Recreation Series, Volume II, *The Doctor's Red Lamp. A Book of Short Stories Concerning the Doctor's Daily Life*, Selected by Charles Wells Moulton. The Saalfeld Publishing Company, Chicago, Akron, Ohio, and New York, 1904.

Like the first volume of this series this one is made up with one or two exceptions of a selection from the literature of stories concerning the doctor's daily life, many of which are by standard authors. Among the Table of Contents we find the familiar names of Sir Conan Doyle, I. N. McLaren, Ruth McEnery Stuart, Margaret Oliphant, Henry Seaton Merriam, Lady Mabel Howard, and a number of other less known writers. The standard of this volume seems to us far superior to that of the first, comprising as it does a large number of classical stories dealing with professional life. We shall await with interest the subsequent volumes of this series.

A *Text-Book of Diseases of the Nose and Throat*, by D. Braden Kyle, M. D., Professor of Laryngology and Rhinology, Jefferson Medical College; Consulting Laryngologist, Rhinologist and Otologist, St. Agnes Hospital; Bacteriologist to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases; Fellow of the American Laryngological Association, etc. With 175 illustrations, 24 of them in colors. Third edition, revised and enlarged. W. B. Saunders & Company, 1904.

The first and second editions of this book have been acknowledged to be among the best books published on diseases of the nose and throat. The present (third) edition contains all the good material of the former editions and also the results of recent medical progress in rhinology and laryngology. The most important of these are the chapters on Keratosis, Epidemic Influenza, Gersuny's Paraffin Method for the Correction of Nasal Deformities, The X-ray in the Treatment of Carcinoma, and The Chemistry of the Saliva and Nasal Secretions in Relation to the Diagnosis and Treatment of Hay Fever. These chapters add much to the value of the book and make it thoroughly modern and up-to-date. The whole book is well written and finely illustrated and deserves the highest commendation.

Medical News

Akron is to have a medical library.

B. H. Blair has returned to Lebanon.

Fight against the smoke nuisance is now on at Columbus.

T. McLaughlin, of Springfield, will practice in Cincinnati.

E. C. Mills, of Columbus, has returned from a European tour.

S. B. Taylor, of Columbus, is reported seriously ill at Athens.

A. V. Smith, of Canton, has resumed his work, after a severe illness.

After a pleasant trip through the east, A. Short returned to Canton.

It is rumored that Dr Parker, of Wellston, will remove to Chicago.

T. C. Hoover, of Columbus, has returned after being absent all summer.

J. H. Lathrop, of Toledo, was injured recently by a fall from a street car.

A. G. Stevens, of Jackson, will locate at Black Foot in Lawrence county.

Ex-resident physicians of the Columbus Protestant Hospital have organized.

R. C. M. Lewis was elected president of the new humane society, at Warren.

J. V. Lewton, of Carrollton, who has been ill for some time is reported no better.

C. F. McBride, of Youngstown, will be absent several months on a trip to California.

R. B. House, of Springfield, returned recently from a trip to the Yellowstone Park.

Irving C. Rankin, of Akron, has left for New York. He will be gone but a short time.

H. F. Colby and daughter, of Dayton, left, during the latter part of August, for Rome.

The project to erect a memorial to the late L. B. Tuckerman, of Cleveland, is again on foot.

W. R. Beattie has returned to Youngstown after a pleasant journey to Washington and Baltimore.

J. N. V. Crawford, of Portsmouth, will arrive home from a European tour some time during August.

C. C. Harnden, of Fremont, was employed to look after the poor in Clyde. The salary is \$133 per year.

A. G. Phillips, of Painesville, filed a petition of bankruptcy in August. Liabilities \$1,859.35; assets \$525.15.

O. B. Randolph's buggy was demolished in a street railway collision at Toledo. The doctor remained unhurt.

O. A. Price, of Cincinnati, while in Columbus sustained a fractured leg while attempting to alight from a street car.

During the absence of S. A. McCullough, Dr Piper, of Armstrong Mills, will look after the former's practice at Bellevue.

Charles J. Aldrich and Morris D. Stepp, of Cleveland, will leave in October, on a moose hunt in the remotest wilds of Canada.

H. M. Schuffell, of Canton, left during September on an extensive hunting excursion through Montana and other western States.

D. B. Taylor, formerly at the Columbus barracks, has been appointed House Physician at the new Soldiers' and Sailors' Home, at Madison.

The Delaware County Medical Society held its September meeting at Delaware. Dr Crane, of Kilbourne, read a paper on "Biliousness, its Cause and Treatment."

The Crawford County Medical Society held its monthly meeting at Bucyrus. Drs Rankin and Leach, of Columbus, gave addresses, the former on "Eclampsia," and the latter on "Fractures."

At the regular monthly meeting of the Columbus Academy of Medicine, F. W. Lawrence read a paper on "Ectopic Pregnancy." S. Leach and W. J. Means submitted several surgical specimens.

The Adams County Medical Society held a profitable meeting recently. S. S. Halderman, of Portsmouth, read a paper on "Diseases of the Gall-Bladder with Report of Cases." Drs Loney and Robe reported cases.

The thirty-second regular meeting of the Canton Medical Society was held in Canton, September 2. A. B. Walker lectured on "How to Prevent Deformity in Treatment of Colle's Fracture." Cases were reported by A. V. Smith, J. P. DeWitt, H. A. March and C. F. Schlitz.

Deaths

L. W. Reed, aged 76 years, died suddenly in Ravenna.

H. E. Parker, the oldest physician in Lorain, died August 30.

Russell C. Barrett, of Toledo, aged 70 years, died August 25.

Charles M. Savage, aged 58 years, died recently at Columbus.

W. F. Archer, an old and respected practitioner of Milan, died in August.

James Larimore, one of Newark's most prominent and esteemed citizens, died in August.

J. H. Leuke, a widely known physician of Cleveland, died recently at Braunschweig, Germany.

Albert G. Miner and wife, of Alliance, were recently both killed in a grade crossing accident.

The Cleveland Medical Journal

VOL III

NOVEMBER, 1904

NO II

A Report of Six Cases of Calculus in the Pelvic Portion of the Ureter

BY GEORGE EMERSON BREWER, M. D., NEW YORK

In response to the kind invitation of your President to read before this Academy a brief communication on some topics germane to the subject of calculus disease of the urinary passages, I have decided to present the histories of six cases of stone in the lower or pelvic portion of the ureter. My reason for selecting this subject is that the detection and treatment of calculus in this situation has received far less attention from surgeons than that of any other part of the urinary tract, and is therefore less well understood by the profession at large.

As the number of cases of this kind which have been fully reported is as yet comparatively small, and as the symptoms and signs observed are exceedingly variable and often misleading, it is the writer's opinion that all such cases should be recorded, for the reason that when a sufficiently large number may thus be collected and carefully analyzed some definite data may be reached which will lead to the early recognition of this most important and often serious condition.

All surgeons who are accustomed to deal with calculus disease of the urinary passages recognize the fact that calculus may exist in the pelvis of the kidney or in any part of the ureter without giving rise to any symptoms during the life of the individual; that calculus of the kidney may give rise to pain referred exclusively to the ureter, bladder or urethra, or indeed to some remote region wholly removed from the urinary tract; that calculus of the ureter may occasion pain, constant or paroxysmal, located chiefly in the kidney region, or, on the other hand, as

widely distributed as that due to renal stone; and also that characteristic attacks of renal colic with or without hematuria may arise from a number of conditions other than stone, among which may be mentioned new growths of the kidney, tuberculosis, septic pyelonephritis, movable kidney and chronic diffuse nephritis.

The term *idiopathic renal neuralgia* has been largely employed, and refers to cases of acute paroxysmal pain in the renal region radiating to the groin or thigh, often accompanied by hematuria but without visible lesion in the kidney. In these cases the pain is supposed to be wholly of nervous origin. Evidence of the existence of an idiopathic renal neuralgia is based upon a large number of negative explorations of the kidney in cases of renal colic. Morris reports a number of these, but states that in six instances calculi were subsequently passed by the patients. As in all of these cases the kidney had been entirely removed from the loin and carefully palpated, and in five the pelvis opened and freely explored by the finger, it is probable that the calculus was lodged in some part of the ureter. From these and a number of other similar observations, it is reasonable to believe that a fairly large proportion of the cases of idiopathic renal neuralgia reported before our now more perfect methods by examination had come into use, were instances of calculus impacted in some part of the ureter.

This view is materially strengthened by the fact that since examination for the presence of calculi by the X-rays has become perfected a very much larger number of ureteral stones have been found. Leonard, in a recent publication, stated that in 50% of his positive examinations ureteral concretions were found.

The normal caliber of the human ureter varies considerably in its different portions, the three narrowest points being found at its upper extremity within one inch of its junction with the pelvic portion, at the point at which it crosses the iliac vessels, and at the point of implantation into the bladder. These points and a fourth, midway between the last two, where the ureter makes a rather sharp bend near the ischial spine, are the usual situations of arrested or impacted calculi.

Regarding the frequency of arrested calculi in the different situations, Morris states that of 44 cases of ureteral stone observed at operation on the living subject, 19 were at the upper extremity, 15 at the vesical extremity, and 11 in the region of the brim of the pelvis, three being below the brim, and the others at or just above this point.

It will be readily appreciated that while stone impacted in the ureter at any point between the kidney and the pelvic brim would, as a rule, be easily accessible for surgical treatment once the diagnosis were established, those situated below the brim in the pelvic portion of the ureter would frequently present serious difficulties. Indeed these difficulties have appeared so great that prior to the appearance of Morris's paper in 1899, few surgeons had attempted to reach calculi impacted in this portion of the ureter except through the bladder, and a careful review of the literature at that time shows no case of ureterolithotomy in the male.

In the last edition of Morris's work on the "Surgical Diseases of the Kidney and Ureter" that author reports 11 cases of stone impacted in the pelvic ureter collected since 1899. In 1902 Hugh Young reported four cases of impacted ureteral stone in the male, of which three were cured by operation, and was able to gather from literature 14 additional cases, making a total of 18 cases in the male.

As the great majority of calculi impacted in this portion of the ureter lie at the vesical extremity of the tube, either at its internal orifice just beneath the mucous membrane or in its intramural portion, removal in these cases should be through the bladder. This can be accomplished through a suprapubic opening, by the perineal route, through a dilated urethra in the female, or as ingeniously practiced by Young, by means of a ureteral catheter, under guidance of the eye, with the cystoscope. When the calculus lies between the pelvic brim and the bladder wall, the following routes have been suggested and practiced: The perineal route described by Fenwick, who makes a transverse perineal incision, separates the rectum and bladder and thus reaches the region of the ureter; the rectal route, practiced in a single case by Ceci; the posterior or pararectal route, either through a Kraske flap (Cabot) or as suggested by Morris by means of an incision parallel with the sacral spines and two inches from the median line; the vaginal route in the female; the transperitoneal or abdominal route; and the extraperitoneal or iliac route, the technic of which will be described in the report of Case V.

Of these various methods of reaching the pelvic portion of the ureter, the transperitoneal and rectal routes should be discarded as too dangerous; of the remaining methods the majority of surgeons now prefer the iliac as the least dangerous and the one which gives the best exposure.

With this brief and imperfect review of the subject, the writer will now give the histories of his personal cases:

Case I: The patient, a boy aged 12, had suffered from pain in the right side for two or three years. The pain was paroxysmal in character, coming on every two or three months, and was often accompanied by fever but rarely by nausea and vomiting. He was first admitted to Roosevelt Hospital about four years ago after the subsidence of one of these attacks. As the history strongly suggested a relapsing appendicitis, and as the only physical sign present was tenderness in the region of McBurney's point, an interval appendectomy was done under chloroform anesthesia. On examination the appendix was found to be free from marked evidences of disease. Further exploration in the neighborhood revealed nothing which would point to any other organ as the seat of the lesion. He made a good recovery and was discharged from the hospital apparently cured. One year later he returned, again complaining of pain in the right side, this time referring its point of greatest intensity to the lumbar region. On examination the right flank was found to be the seat of a large oblong tumor somewhat sensitive to the touch and giving on deep palpation an indistinct sense of fluctuation. The temperature was normal. There was no muscular rigidity; the function of digestion was apparently unimpaired. Urination was normal and regular and unaccompanied by pain. Examination of the urine failed to reveal any evidence of disease. Under chloroform anesthesia an oblique incision was made in the loin extending from the last rib to a point opposite the anterior superior spinous process of the ileum, and the tissues divided layer by layer until the perirenal fat was reached. The large tumor was found to be an enormously dilated kidney, which, upon section, was found to contain a quantity of cloudy urine. A flexible ureteral sound was then passed down the ureter through the wound in the kidney, and an obstruction encountered deep in the pelvis near the junction of the ureter with the bladder. It did not, however, give to the examining hand the feeling of contact with a calcareous body. As the kidney tissue was to a great extent atrophied by prolonged pressure, and as the obstruction could not be moved after considerable manipulation with sounds, the kidney was extirpated after separate ligation of the vessels of the pedicle. The ureter was ligated at the brim of the pelvis, and its end thoroughly disinfected. The wound was closed by layer suture, with one small cigarette drain emerging at the upper angle. Primary union occurred, and he was discharged from the hospital completely relieved three weeks after the operation. Five months after his discharge from the hospital he was readmitted, suffering from an acute retention of urine. On examination his bladder was found to be distended, reaching half-way to the umbilicus. Persistent effort resulted in the passage of only a few drops of bloody urine. Exploration of the urethra revealed the presence of a calculus impacted in the prostatic portion of the canal. Under chloroform anesthesia a perineal incision was made on a grooved staff, the posterior urethra dilated and a calculus about the size of a bean removed. A No. 24 perineal tube was introduced into the bladder, the

wound dressed and the patient placed in bed. His recovery was uneventful. The tube was removed on the fourth day; the wound granulated rapidly and closed at the end of two weeks. A No. 24 steel sound was passed to the bladder every third day at first, and later once a week. It is probable that the urethral calculus was the one originally situated in the lower part of the right ureter giving rise to the hydronephrosis, which had, subsequent to the operation, become loosened, dropped into the bladder and become impacted in the posterior urethra.

Case II: A male, 50 years of age, was seen by the writer in consultation in the spring of 1903. The patient had previously enjoyed good health until 16 months ago, when he began to suffer with indefinite pains in the left hypochondriac region, increased by deep inspirations, by walking or riding on the cars. These pains were of short duration but of frequent occurrence. He was seen by his family physician, who regarded the trouble as due to digestive derangement.

One year ago, following a fatiguing railway journey, he experienced a sharp attack of left-sided colic, the pain extending from the region of the kidney to the groin and thigh. This attack lasted 48 hours and then completely disappeared. The urine examined at this time was absolutely normal; there was no trace of albumin, pus or blood. Five months later he had another shorter attack of similar nature, also without the passage of blood in the urine. A few months later he had another attack, accompanied by frequent urination and pain over the left external abdominal ring. Following this there was a period of rather disturbed bladder function and more or less discomfort in the groin. The patient was now admitted to the Roosevelt Hospital for examination. Abdominal palpation revealed no point of tenderness, excepting over the external abdominal ring, at which point there was slight pain on deep pressure. The kidney was not palpable, rectal examination was negative, and cystoscopic examination showed the bladder free from stone or other abnormal conditions. An X-ray plate revealed the presence of a small oval calculus in the lower part of the left ureter near the spine of the ischium.

As the patient was suffering practically no discomfort, and as there was no evidence of ureteral obstruction, he was advised to take a course of Poland water and to defer operative intervention for a few weeks. Three weeks later he had another severe attack of left-sided colic which was later followed by a sensation of pain and pressure in the deep urethra. As the attack occurred at night, the patient immediately proceeded to drink large quantities of Poland water and after two or three hours of acute suffering, finally expelled the calculus from the urethra. He has since been well.

Case III: Miss ———, aged 32 years, was seen in consultation in March. In January last, this patient complained of rather ill-defined paroxysmal pain in the right side of the abdomen.

For this she consulted a physician who expressed his opinion that the trouble was probably due to some slight pelvic disorder.

One month later she noticed a peculiar pricking sensation in the region of the external abdominal ring when sitting, and occasional sharp pains when walking or riding in a car. In addition to these sensations, she would occasionally experience a sharp stabbing pain of short duration in the region of the right kidney. She continued to go about as usual for a week or more, when the pain in the right inguinal region became so aggravated that she was obliged to go to bed. The pain was now referred to McBurney's point, and was so severe in character that it frequently prevented sleep. It would occasionally radiate downward to the region of the pubic crest and thigh. There was no fever and no vomiting; the urine was absolutely negative.

It was at this time that the writer first saw and examined the patient.

On inspection the abdomen presented nothing abnormal. On palpation there was no muscular rigidity but marked tenderness at a point at or just above the external abdominal ring; no impulse on coughing; there was no tumor. The following week the patient experienced considerable relief, but soreness in the right inguinal region continued with a moderate amount of backache on both sides. Whenever she attempted to sit up she would have increased pain and discomfort. She would occasionally have slight shooting pains in the left groin but no tenderness to pressure. The patient remained in bed for six weeks when she was again seen in consultation by the writer, with a view to an operation for the removal of the appendix which had been advised by another consultant.

On second examination the signs were practically the same. There was no muscular rigidity and no tenderness except at one point in the inguinal region just above the external ring. Kidneys, not palpable. Pelvic examination, negative. Urine, free from albumin, pus or blood; no fever, no leukocytosis. The opinion was expressed that the case was probably not one of appendicitis. An X-ray examination was suggested with a view to determining the presence or absence of calculus of the kidney or ureter, and, in view of her constant suffering, an exploratory laparotomy was advised in case this examination proved negative.

An X-ray picture taken the following day by Dr Cole showed clearly the presence of a calculus in the lower end of the right ureter and a faint shadow indicating a small concretion in the other ureter. She was advised to undergo a course of treatment with Poland water for a few weeks before deciding upon operation. When last seen the acute pain had entirely disappeared but there was a constant feeling of discomfort in the lower inguinal region with occasional sharp stabbing pains on exertion.

Case IV: M. C., female, aged 43, single, was admitted to the Roosevelt Hospital in the autumn of 1903. Fourteen years before she experienced an attack of pain in the lower left abdomen

which lasted six days. Nine years ago there was another similar attack which lasted 12 hours. This time the pain radiated to the groin and thigh, and there was a sense of numbness in the external genitals of the same side. Since that time she has had about 12 severe attacks of a similar nature with more or less constant discomfort in the flank and groin. In one of these attacks there was moderate hematuria. Three years ago she underwent an operation on the left ovary which was followed by a period of relief for several months. The pain, however, recurred and during the last two years has been at times severe and necessitated the giving up of her work. When admitted to the hospital she was found to have an extensive ventral hernia at the site of the previous operation. There was moderate tenderness over the left kidney, at a point two inches below and to the left of the umbilicus in the neighborhood of the external abdominal ring, and, by vaginal examination, in the left half of the roof of the pelvis. These points of tenderness varied somewhat on different occasions, and at times none but the kidney tenderness could be elicited. The urine was cloudy, containing a faint trace of albumin and considerable pus. While in the hospital she had an acute attack of colic, the pain radiating to the groin and thigh with tenderness over the kidney but without hematuria or evidences of hydronephrosis. An X-ray examination of the kidney was negative. The attack of colic was so characteristic, however, that an exploratory operation was advised.

Under ether anesthesia a generous oblique incision was made in the flank exposing the kidney and upper part of the ureter. The kidney was incised, the finger passed into its pelvis and every calyx explored with negative result. A flexible metallic ureteral sound was next introduced into the ureter and passed to the wall of the bladder. It could not be pushed beyond this point. There was no feeling of a foreign body touching the sound, its failure to pass into the bladder being apparently due to stenosis of the ureteral opening rather than to the obstruction of a calculus. To verify this, however, the incision was extended to the inguinal region and the ureter followed downward with the finger to its junction with the bladder. As no stone could be felt, and as an injection of a solution of methylen blue into the pelvis of the kidney immediately appeared in the bladder urine, further search was abandoned, the wound was closed by layer suture, a small cigaret drain being left extending to the kidney incision.

The wound healed kindly and several weeks later the patient submitted to an operation for the cure of the ventral hernia. While she was still in bed from the latter operation she complained of more pain in the groin, and another X-ray picture was taken which showed the presence of a calculus in the lower end of the ureter. The patient refused further operative treatment and was discharged from the hospital. Three or four months later she experienced a severe attack of acute left-sided pain accompanied by chills, fever and sweats. During this attack the region of the left kidney was exquisitely tender, and the kidney was appar-

ently enlarged from distension of its pelvis. The attack subsided in about one week. Two or three weeks later she was readmitted to the hospital.

Under ether anesthesia the urethra was dilated until it admitted the forefinger, with this the region of the left ureteral opening was palpated and a small oval calculus distinctly felt beneath the mucous membrane. The bladder was then distended with 10 ounces of sterile salt solution, opened above the pubes and its walls retracted by three large abdominal retractors. A bent probe passed through the left ureteral orifice touched the stone. The orifice was slit up for a distance of a quarter of an inch, the stone readily seized with the forceps and withdrawn. After thoroughly irrigating the bladder, it was closed tightly by three layers of chromicized catgut suture, the other structures approximated and the cutaneous wound partly closed with silk. A small gauze drain was left in, extending to the cavity of Retzius. The patient was catheterized every two hours for the first three or four days. The wound healed kindly and without a drop of leakage. She has since been well.

Case V: M. S., male, aged 34, single, barber, was admitted to the Roosevelt Hospital in March 1904. When six years of age this patient experienced an attack of right-sided colic, the pain radiating from the flank to the groin, glans, penis and testicle. Since that time he has had many similar attacks. At 13 years of age he experienced a very severe attack which lasted three days and was accompanied by the passage of red urine. Eleven years later he had another severe attack which lasted six days. In none of these attacks was there any apparent swelling in the region of the kidney. Three years ago an X-ray picture taken of the kidney region was negative.

Up to one year ago the patient was under the care of Dr George K. Swinburne, who stated to the writer that the urine had always been clear and free from any evidence of renal or bladder infection. Shortly after this the patient visited a Dispensary where a sound was introduced for purposes of exploration. This was immediately followed by an acute infection of the bladder, and since that time the urine has never been free from pus. Six months ago the right kidney was explored at the City Hospital, no stone was found, but as the kidney was somewhat movable, nephrorrhaphy was done. No relief followed this procedure and during the last five months the patient has suffered more or less constant pain in the right inguinal region, chiefly located at a point near the external abdominal ring. Three days ago he experienced another severe attack which was so acute in character that he was unable to sleep, and for two days he rolled about on the bed and floor screaming and vomiting. The urine was albuminous and turbid with pus. There was slight tenderness over the kidney and ureter, more particularly over its lower portion. An X-ray examination revealed the presence of a stone in the pelvic ureter near the spine of ischium.

Under ether anesthesia an eight-inch curved incision was made about two inches above Poupart's ligament, the muscular layers divided until the peritoneum was reached. This was retracted inward and stripped from the side wall of the pelvis, freely exposing the iliac vessels and ureter. The ureter was easily followed into the pelvic cavity and the stone found about one inch below the brim of the pelvis. Above this point the ureter was dilated to the size of the forefinger and considerably thickened. The stone was easily pushed upward to a more healthy portion of the ureter and extracted through a small longitudinal incision. The incision was tightly closed by a single row of fine chromicized catgut sutures. Over this was placed a mass of subperitoneal fat which was also sutured to the ureteral wall. After this the parts were allowed to fall into place and the wound united by layer suture, a small cigaret drain being left in its lower angle extending to the subperitoneal space. His recovery was uneventful. There was no leakage. He was discharged on the twenty-fifth day after operation.

Case VI: W. W. P., male, aged 52, was admitted to the Roosevelt Hospital in August last. Nine months before admission he experienced a severe attack of right-sided renal colic. The pain extended from the region of the kidney downward into the right groin and scrotum. This attack lasted for two or three days, after which the pain gradually subsided. Three weeks before admission he had another attack of the same nature which was even more severe than the first, and necessitated the administration of a large amount of morphin for its relief. On this occasion, the pain was located lower down, the point of greatest intensity being about one inch above the external abdominal ring. From this attack he never fully recovered, having more or less constant pain over the lower portion of the ureter.

On examination there was marked tenderness on deep pressure at a point from one to two inches above the external abdominal ring. There was also slight tenderness over the region of the kidney, but no tumor or muscular rigidity. Rectal examination revealed moderate tenderness in the neighborhood of the right seminal vesicle.

The urine was slightly clouded in appearance, containing a small amount of pus and a few red-blood cells. Cystoscopic examination revealed a healthy bladder-wall with the exception of a small area around the right ureteral orifice which seemed slightly reddened and edematous.

An X-ray examination revealed a shadow about the size and shape of a large bean, situated about three-quarters of an inch from the ischial spine. Below this there were two or three indistinct shadows about the size of the head of a large pin.

Under ether anesthesia, an eight-inch incision was made from a point one inch above the spine of the pubes outward and upward parallel with Poupart's ligament. The tissues were divided until the subperitoneal areolar space was reached. The peritoneum and

its contents were then retracted toward the median line and the iliac vessels exposed. The ureter was isolated and followed downward toward the floor of the pelvis, but the lower inch was found to be imbedded in a mass of inflammatory exudate. The tube was incised and a metallic sound passed downward. It encountered an obstruction near the bladder-wall which upon further examination was found to be a calculus corresponding in size and shape with the shadow in the X-ray plate. This was with considerable difficulty forced upward in the ureter for about one inch where it was arrested by the presence of a dense cicatricial stricture. A second opening was made in the ureter below the stricture and the stone removed, after which an instrument could be passed into the bladder. Both of these openings were closed with fine silk sutures, the parts allowed to fall into position, and the abdominal wall united layer by layer with chromicized and plain catgut sutures. A small cigarette drain extending to the subperitoneal space was inserted in the lower angle of the wound.

The patient made a normal convalescence. The wound healed throughout by primary union, and there was never any leakage of urine. He has since been well.

61 West 45th Street

The Opening of the Tuberculosis Dispensary in Cleveland

BY JOHN H. LOWMAN, M. D., CLEVELAND

A Tuberculosis Dispensary was opened in the College Building of Western Reserve University, corner of Erie and St. Clair Street, October 6, 1904.

There are, at the disposal of the clinic, one large reception room, two examining rooms, an office, and two small rooms. All of these apartments have been thoroughly renovated; and have been painted and stippled a warm ivory tint. Three feet from the floor an ornamental red band runs around the room and below this the wall is varnished. It has been found by Coates and Cornet in their work in the homes of the tubercular poor, that bacilli are most frequently found near the floor and near the walls, whence the idea came to us that the daily cleaning of the room could be expedited and economized by placing some plain designating mark on the walls to guide the cleaners. In this way an adequate disinfection can be made rapidly. The office is off the waiting room and on either side are examining rooms, one for men and one for women. There are also dark-rooms which can be used for laryngological work. The plant was in fact once used as a general dispensary and has all the toilet conveniences and necessities which accompany such an institution.

The lighting is by gas and the heating by steam, but the steam pipes have been refitted and placed eighteen inches from the wall, so that they can be easily reached on all sides and thoroughly cleaned and disinfected.

The disposal of chance sputum of the patients is always a problem in a tuberculosis dispensary or sanatorium. In the sanatoria, cuspidors have been discredited because bacilli were found in their neighborhood. Even spittoons with running water have been done away with. In some dispensaries sputum cups are furnished; in others, gauze handkerchiefs are handed each patient as he enters the room; in others, paper napkins are given and these are collected and destroyed. In the Cleveland Dispensary a heated cuspidor is used so that the sputum is destroyed as soon as it is discharged into the receptacle, and the cleaning of the cuspidor is fraught with no danger of infection to the attendants who renovate the room.

On a map of the city hanging on the walls of the office, black pins indicate the places of residence of tubercular patients. There are four physicians and two nurses in attendance at the dispensary, from one to three o'clock every afternoon. An evening hour remains to be provided for, and a laryngologist is available when needed. The medicines are naturally few in number, and are prepared by the Lakeside Hospital apothecary, and dispensed by the physicians; this is easily and quickly done and does not delay the examiners or interfere with their work. A resident apothecary has not usually been found necessary in the tuberculosis dispensary.

The City laboratory examines and reports on specimens of sputum. Bottles for the sputum, phials for diphtheria swabs, and aluminum boxes for receiving blood for the purposes of testing it for the typhoid fever reaction are in readiness and are furnished by the City laboratory. The Health Officer and authorities have shown their interest by placing the City laboratory at the disposal of the patients of the dispensary and have thus contributed a very valuable aid to the efficiency of the new institution.

A tuberculosis dispensary, to be effective, must be in close touch with its patients. If conducted on the ordinary dispensary lines of treating the cases in the precincts of the institution, it will fail. It must treat the cases in their homes. If it attempts to conduct the cases by medicines alone it will fail, for the treatment of tuberculosis is not medicinal but dietetic and hygienic, and the rules of diet and hygiene can only be inculcated by continued reiteration in and out of the homes by some one who is

persona grata to the needy at their fireside. It is absolutely necessary, therefore, that some provision be made for this in the antituberculosis work. Calmette, who is the originator of the movement by dispensaries, says that the inspector is the chief wheel in the machinery, and must be selected with more than ordinary care. He must visit the homes, instruct the head of the family, supervise the patient, recall the words of the physician, inspect the houses, enjoin cleanliness and care, urge precautions against infection, and inspire hope, courage and perseverance. He must see that the diet is sufficient, and ascertain if the family can supply it. If means are lacking he must report, and funds should be available for this emergency.

The Cleveland Dispensary is the resultant of several bodies that are, each in its own way and in its own sphere, aiming to relieve the poor. All of them have been doing this work extensively for years. The dispensary, by collecting and registering the tuberculosis cases, is able to indicate where the benevolences can be jointly effected as far as this disease is concerned. By itself alone it would be scientific and academic; conjointly it becomes sociologic and far-reaching. The disease itself is so elusive and permeates the community so insidiously, that all the human agencies possible are necessary to eradicate it. That the feeble means already in use are effective is evidenced by the decline in the percentage of tubercular cases in well-registered areas.

The Western Reserve University opened the former dispensary rooms in the Medical College building for the purposes of this movement. Arrangements were made at Lakeside Hospital to supply medicines temporarily. The Visiting Nurse Association detailed two nurses to work on the tubercular cases. The Society for Organized Charities offered its aid. The City gave the hospitality of its laboratory. As has been said, all these organizations were already doing this work in a general way. It only remained to direct the tuberculosis invalid along the right path so that he might have the advantage of the opportunities that were awaiting him and be introduced to those who were eager to help him.

When a patient comes to this dispensary, he is registered, examined, and full details of his case with a plot of the lung areas involved recorded on the history chart. These histories are kept numerically arranged in suitable boxes. He is instructed, given what remedies are needed, and turned over to the nurse, who fills the complete registry card then or later. She takes his name

and visits him in his home. The reports of the nurse are full of interest. She may find that the patient sleeps with the children because there are not beds enough in the house for better arrangements. It may be difficult to make the patient appreciate the value of fresh air. She may find that the patient resented the extensive examination and registration at the dispensary. There are many curious, and to us, seemingly foolish reasons why the needy do not return to the general and special dispensaries. In one city that I recently visited the antituberculosis movement languished because the city inspector called on the patient in a blue uniform with a blazing star on his breast and asked many questions, the answers to which he wrote down in a large book. The poor resented this; they had not asked for material relief, but for advice.

District nursing and inspection should be done by those who enter the houses of the poor as their friends and aid them in their work for the time being. They should lay aside hat and coat and assist by preparing some delicacy, or even by aiding in the housework. I have even known them to help scrub and clean rooms in order to teach their patients proper methods of disinfection. There are countless points in hygiene, diet, care, and cleanliness which such a charity worker could inculcate. While doing these things the necessary questions can be asked, and subsequently recorded. There is some chance for error in statistics in this method but it will open the mind of the patient to what is best for him and the end in view will be nearer of attainment than by too much bureaucracy. The Visiting Nurse Association of Cleveland works in this way, and has already shown that it is an invaluable aid in this antituberculosis movement. This, however, is only a small part of its many sided work. The Society for Organized Charities has in many instances supplied milk, eggs, bread, cots, and other necessities to those whom we have found needy. This society works by very careful methods, and in a most wise way strives to get the people to help themselves. As everyone knows, it has for years aided the deserving and exposed fearlessly the fraudulent.

In Lisbon, Portugal, a large dairy is connected with the dispensary and milk and other food as well as garments are bountifully supplied. In the Lisbon Institute there are many living rooms at the disposal of families whose homes are being renovated or disinfected, and a laundry for the care of the linen of tubercular patients. In fact the Portuguese have developed the dispensary so broadly that it has grown into an institute where

popular lectures on sociologic subjects are given. In Edinburgh and in Lille it is believed that the dispensary is in touch with almost all of the tubercular cases.

There are many co-ordinated movements which naturally grow out of a well-managed dispensary. One of these that excites general interest is the preservation of children. When a tubercular case is discovered, the children should be sent to homes or farms for a temporary residence until the infected house is renovated and disinfected and the patient is instructed in the care of himself and of his sputum. This movement has attained large proportions in France. We have found it possible already to carry out this idea in a small way and the children's benevolent societies among us have indicated a great willingness to assist. There is no doubt that this phase of the movement will be carried out here in a very definite way.

Another idea is the detection of infected factories, offices, and places of work. When a disproportionate number of cases is reported from one factory, such a place should be notified, and I have never found that such a notice received other than the most attentive and respectful hearing. The dispensary, by its records, becomes a detective of tuberculizing centers. I found one office where there were four cases of tuberculosis that had successively kept the same set of books. I saw a case in Medina, Ohio, where one young man took up the books in a bank which had been in the hands of a tuberculous clerk, and in six months had a hemorrhage. Could there be an agent which would spy out these infecting points, the control of tuberculosis would not be far distant.

The sanatoria naturally call on special dispensaries for the proper selecting of cases, as do the hospitals on the general dispensaries. The contagiousness of the disease makes it necessary that a specially prepared place should be available for receiving the patients who are now denied entrance to many hospitals. It is moreover not safe to crowd the general dispensaries with tuberculous cases. The tuberculosis clinic should be kept clean, and disinfected with especial care, for thereby reinfection within its walls can be prevented. Although tuberculosis is a contagious disease, the contagion like that of typhoid fever is controllable by adequate supervision and precaution. Cleveland has many organizations which make for the betterment and uplifting of its citizens. A tuberculosis dispensary, in working with and among such bodies, can guide with greater certainty and effectiveness the personal sanitation that is essential to a national physical health.

The scientific work of the dispensary must be active. He who runs may read that. But this work alone does not represent the full intent of the institution. The spirit of the dispensary must be the same as that which has actuated the housing question, the College settlements, the civic parks and playgrounds commissions, and public benefit associations. There is a large measure of hope for us in the fact that these agencies have been able to appreciably diminish the mortality from tuberculosis in our country during the last twenty years in the face of increasingly difficult problems, even without consciously working for this result. The conscious antituberculosis movement with its sanatoria, dispensaries and direct propaganda applies these valuable social remedies to the tubercular as a class. It winnows them from the mass of unfortunates, separates them, particularizes them and confers upon them special advantages which only time could bring to the great mass of the poor.

By giving this point to its benefits, by concentrating and co-ordinating all possible agencies for the benefit of those afflicted with tuberculosis, it will do the work with much greater ease and rapidity than could an undirected general movement. That the science of medicine will gain much in this large warfare against causes and conditions, as well as against their results, is certain. In order to follow this insidious chronic trouble into its lurking places medicine will have to associate itself more closely with social endeavor than ever before. For this union of medical science and social science there is probably no better point of contact than the tuberculosis dispensary.

This engine must be the product of the peoples among which it operates. In some European states it can be conferred as a benefit upon the people by paternal governments, or in France it can spring full armed from the brain of some scientist who will fearlessly and proudly operate it in his own name and lend it the distinction of whatever he has achieved in reputation. In these countries the central government, or the municipalities, will cooperate with it and contribute to its success and growth. In our country its best chance is in cooperation with some successful institution or philanthropist. It must then affiliate itself with all agencies which are unconsciously working along the lines which it proposes to further and to accentuate, and must prepare itself to fight a chronic social evil in close cooperation with other experienced organizations.

The Rheumatoid Diseases

BY HENRY O. FEISS, M. D., CLEVELAND

Perhaps no man in this country has given so much time and thought to the consideration of the subject of the rheumatoid diseases as has Dr Joel Goldthwait, of Boston. The present paper is based chiefly on his reports ^{1, 2, 3, 4}, and on personal experience in the Orthopedic Clinic at the Carney Hospital, of Boston, while in the service of Dr Goldthwait and that of his associate, Dr Charles F. Painter.^{5, 6}

From these writings it is apparent that the division of these diseases into types is of great importance. This division is based first and foremost upon clinical evidence, and each type is a basis for definite lines of treatment. He divides these so-called rheumatoid diseases into three types, one atrophic or rheumatoid arthritis, the second hypertrophic or osteoarthritis, and the third infectious arthritis.

Atrophic arthritis is described as a "disease of atrophy and is characterized by spindle-shaped swellings of the joints during the acute and subacute stages. As the swellings subside, the joints are left smaller than normal." Not only the joints themselves, but the skin and muscles about the joint, show signs of atrophy. This is manifested in the skin by the absence of wrinkles, and in the muscles by deformities, which are due also to prolonged faulty positions of the joints. These deformities are of flexion and extension, seldom lateral.

The disease, which is a progressive one, usually occurring in adolescent girls and in elderly women, attacks joint after joint, and tends to permanent crippling. Several joints may be affected at a time. After a time the process subsides, but often leaves the joint ankylosed. If bony ankylosis actually takes place, it is characteristic if studied in a dried specimen. The fused mass of newly-formed bone consists of a delicate lace-work of spicules, spongy in appearance, as though originating in the medulla, and is flimsy to the touch. There is a loss of density which is manifested by lightness of weight.

Hypertrophic arthritis, as its name indicates, is characterized by "marked proliferation of the edges of the articular cartilages," due to ossification of the cartilage. Trauma seems to be an important factor in its etiology. If there is a predisposition to these osteoid changes and an injury is received, the hypertrophy of the cartilage and the formation of osteophytes will take place relatively much sooner. It is not so progressive as atrophic

arthritis, is distinctly a disease of adult life, and causes less crippling, which, if present, is due to the mechanical effects of the bony growths. The joint is actually increased in size and on account of the asymmetrical nature of the progress, the linear deformity is almost always lateral. In the fingers, the bony nodes become what is known as Heberden's nodules.

The hypertrophic arthritic bone is very hard and dense and contains few cavities. It resembles cortical bone rather than medullary. This type may also lead to ankylosis.

In the vertebrae the disease attacks the anterior surfaces of the bodies, but always on one side. In the dried specimen the osseous material has the appearance of having been poured down the side of the bodies in liquid form, like molten lead, then hardening *en masse*, assuming the general contour of the underlying vertebrae, and clamping them together.

"The term infectious arthritis is used to designate a joint disease resulting from the presence within the body of some infectious organism, the symptoms being due either to the presence of the organism itself within the joint or to some toxin produced by that organism in some other part of the body." It is rarely primary, although the primary disease may be mild or attract little or no attention. It may result from practically any of the infections including typhoid fever, gonorrhea and streptococcus, staphylococcus and pneumococcus infections.

The symptoms depend of course upon the nature and severity of the infections, but speaking generally, we find in these cases a rise of temperature, general glandular enlargement, an increase in the pulse-rate, and a leukocytosis during the active stage. In other words, the prodromal symptoms are such as are found in infectious fevers; and it is these symptoms, viewed as a symptom-complex, that are lacking in the atrophic and hypertrophic arthritis.

A distension of the capsule about the joint is found at first. If this swelling persists it is due to thickening of membranes and soft structures about the articulation. If more than one joint is affected, it is characteristic that all become involved at practically the same time or at least within a few months, and this is in marked contrast to the atrophic form, in which the joints break down after long intervals. Besides the history, the symptoms and the local appearance of the joint, the X-ray gives us valuable evidence in differentiating the disease from the other forms, for in this condition we find "no change in the bone or cartilage unless the process is of a destructive nature

in which the mere extent of the destruction would make the recognition of the condition easy." In atrophic arthritis, however, as we have shown, there is atrophy from the beginning, at first showing in cartilages between the bones, but later in the bones themselves. However, in the infectious type after a destructive process, there may be some attempt at repair as shown by the formation of new bone, and ankylosis may take place. In this case such a joint might be confounded with the hypertrophic form. In the hypertrophic arthritis, ankylosis is rare, except in the spine, and the hypertrophy is always at the edge of the articular cartilage. In infectious arthritis the thickening takes place at the point of infection and acts as a periostitis.

Our treatment is based upon these principles:

Atrophic or rheumatoid arthritis is a progressive disease, and if we are not able to stop its course, we may modify it. Active measures are begun as soon as the acute symptoms have subsided. As there is a marked tendency to joint ankylosis, one should aim to keep the joint movable. Manipulation is indicated immediately after the acute stage. During the active stage we resort to general measures such as rest, fresh air, sun-light and good nourishment. The affected joints are protected by means of bandages or splints, but no excessive motion is permitted, although in mild cases it may be recommended to the point of pain.

After the active disease subsides, determined perhaps by the disappearance of muscular spasm, the joint should be manipulated under ether anesthesia.

The joint should first be flexed to normal limits and then extended. One maneuver is sufficient; after that it is fixed. In a few days it is again manipulated and again immobilized, and if this treatment is kept up at regularly decreasing intervals a moderate amount of motion may be expected. Active motion is also used and later on massage may be substituted as an additional measure.

Such measures often give excellent results in a knee in which the disease has an especial tendency to recurrence. At times, however, fringes, and dislodged coagula persist as relics of the disease, causing constant irritation which may be manifested by pain, swelling, creaking and other symptoms. In such cases operative measures⁷ are often wise, such measures consisting of opening and cleaning out the joint, removing coagula or dissecting off the fringes. The same methods apply to the shoulder and elbow though they are less commonly attacked.

Since hypertrophic or osteoarthritis is a disease which seems

to grow worse as a result of trauma, the joint should be protected by fixation, and as the active symptoms subside guarded use is allowed under continued protection.

The spine is a common seat of hypertrophic arthritis.^{8, 9} We have already described the appearance of the vertebrae when so attacked. Actual fusion of these may or may not take place. At any rate there is a tendency for the process to spread locally, and while intervertebral discs are being absorbed, ossification may extend into the neighboring ligaments. When the process extends into the ligaments and articulations more posterior, the foramina through which the spinal nerves pass are narrowed and the nerves are pressed upon, causing pain, disturbed sensation and perhaps even paralysis.

As the disease attacks but one side, the symptoms are of one side and lateral deformity may accompany these symptoms. Some of the deformity may be due to spasmodic muscular contraction. The indications for treatment are protection and fixation, first, to prevent further trauma and irritation, and, second, to prevent further deformity due to shifting of superincumbent weight. Clinical evidence shows that under such treatment, the process subsides and after a while the deformity is righted while motion may be restored to normal limits.

Hypertrophic arthritis in the hip bears the name of *coxae morbus senilis*, and the same principles of treatment hold good as in that outlined for the spine. The prognosis is good for both these parts, if proper fixation methods are carried out.

In the knee, moreover, as in the atrophic form, the remains of the disease may cause mechanical trouble. Here too operative measures will often prove successful. On the *os calcis*, the manifestations of hypertrophic arthritis appear as osseous deposits on certain ridges commonly called spurs, here more than anywhere else the evident result of continuous trauma. Excellent results follow the chiselling off of such spurs. Again in *hallux valgus* we find manifestations of osteoarthritic changes on the shape of proliferated articular edges. The head of such a metatarsal is removed.

In the treatment of infectious arthritis, we have to do first with the general condition and, secondly, with the local affection. The treatment of the general condition depends upon the type of the primary disease, or if this could not be demonstrated, the indication would be shown by the symptoms present. Locally the joints are protected to relieve pain. Fixation may be indicated in the more acute type, and, as in the other form, we try to prevent

future deformity. Massage and passive motion may be used after the active stage. More radical measures may be necessary in cases in which the joint shows a very active process, and we may have to open up and drain the joint at the very onset, as in streptococcic and pneumococcic infections.

In other cases, as in the gonorrheal form, if the disease process does not subside at the end of a few weeks, it may be wise to open and wash the joint.

In other cases, again as in the other types, the joint may remain weak or sensitive, which may be due to the fact that the swollen membranes have led to folds and fringes, or that fibrin may have become precipitated in the synovial fluid. In such cases if other local means fail, operative measures are again indicated, and the joint may be opened and cleaned out.

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Report of a Case of Cesarean Section for Placenta Previa

BY R. E. SKEEL, M. D., CLEVELAND

The case which I wish to report is that of Mrs J. V., aged 36, whose first child was still-born prematurely but who has since that time had two children, the younger seven years of age. Her labors were not especially difficult, but after the birth of the last child she noticed some dragging pain in the right side and a decided prolapse of the uterus. I first saw her two years ago, at which time there was a freely movable right kidney, marked enteroptosis, a retrodisplaced uterus which upon exertion or standing prolapsed to the level of the internal os, and an associated cystocele and rectocele. The cervix was deeply lacerated bilaterally and greatly hypertrophied and elongated. At this time curetage, Schroeder amputation of the cervix, anterior and posterior colporrhaphy and ventrosuspension of the uterus were done, the posterior portion of the fundus being stitched to the abdominal wall with two fine silk sutures. Following these procedures the patient was in good health, and I saw her infrequently until

December 6, 1903, when she reported that her last menstrual period was July 13, 1903. My notes at that time stated that the uterus extended nearly to the umbilicus, its superior surface seemed very thin, but that it was freely movable and with no apparent attachment to the abdominal wall. She was seen frequently but with no further examination until February 28, 1904, when the fundus was above the umbilicus, very broad and apparently depressed in the middle line superiorly. The head could not be palpated externally or bi-manually. The entire lower segment felt normal but the same thin condition of the upper segment was still apparent.

The cervix seemed normal but was markedly high up and displaced backward. On March 13, 1904, the patient had a very severe hemorrhage after she had arisen from bed and walked across the floor. I saw her soon after and found that while she was somewhat exsanguinated, the hemorrhage had been without perceptible influence upon her pulse-rate. The fetal heart which was plainly heard was normal in character and rate. Examination showed a transverse presentation, the head to the left. The cervix was undilated, almost out of reach and displaced posteriorly nearly to the promontory of the sacrum. The cervix and vagina were snugly tamponed and the patient sent to the hospital. Here the tampon was removed and an effort was made to distinguish the extent of placental attachment over the cervix, but this was ineffectual owing to the location and rigidity of the cervix. The lower uterine segment was then tamponed and labor pains awaited. That evening conditions were entirely stationary and no pains had occurred. The next morning the cervix was somewhat softer and a Champetier de Ribes bag was introduced with difficulty and partially filled. As a result the cervix was about one-third dilated but no uterine contractions took place and the cervix still maintained its original length. Upon removal of the bag it was possible to feel the placenta over the entire circumference of the cervix and attached well above the internal os on all sides.

Withdrawal of the finger was followed by such profuse bleeding that the lower uterine segment was again hastily packed. Taking into consideration that the child was still alive, the mother in fair condition, the cervix long and only partially dilated and reached with difficulty, Cesarean section was decided upon and performed at once with the delivery of a living child. Hemorrhage during delivery of the placenta was very free but was controlled by an assistant who compressed the broad ligaments until the uterus was sutured, when it ceased spontaneously. The mother

made an uninterrupted recovery and the child is at present alive and thriving.

The condition of the uterine suspensory ligament was noted with considerable interest. It extended from the abdominal wall just above the pubes to the posterior surface of the fundus; was more than six inches in length and a finger's-breadth wide and was entirely wrapped in omentum. The only anomaly for which it seemed to be responsible was the approximation of the cervix to the sacrum, while the apparent thinning and depression of the fundus were due to the malpresentation of the fetus and absence of the placenta from its usual location.

Hydrocele of the Canal of Nuck

BY ELIOT ALDEN, M. D., CLEVELAND

Formerly Resident Surgeon at Lakeside Hospital

[FROM THE CLINIC OF DR DUDLEY P. ALLEN, AT LAKESIDE HOSPITAL]

The following interesting case of hydrocele of the canal of Nuck occurred in the service of Dr Dudley P. Allen at the Lakeside Hospital:

Mrs W., aged 46, married, gave nothing of importance in her family history. There have been no previous illnesses. Ten years ago the patient first noticed a small tumor in the right groin, which appeared without any known cause. The swelling never disappeared on lying down or on pressure, but gradually and painlessly increased in size. One year later the patient suffered for about nine months from pelvic pain and backache. During this time the slow, steady growth of the tumor was unchanged. Since then the patient has been well and has had no pain or other symptoms from the tumor except inconvenience from its size and situation. The tumor has been tapped five or six times, the last tapping being made three weeks ago. Each time clear fluid was withdrawn.

Examination: A pedunculated tumor, the size of a cocoanut, is located over the external inguinal ring in the right groin. The tumor is tense, elastic, fluctuating, and translucent to light. There is no impulse on coughing, and no change in size or consistency on recumbency or gentle pressure. The other organs are normal.

Operation: An incision was made by Dr Allen over the prominence of the tumor, and the dissection carried down to a thin sac of fluid occupying the inguinal canal and protruding from the external ring, after dividing the external oblique fascia and exposing the canal, the sac was aspirated and about three-quarters of a pint of clear fluid was evacuated. The sac was then opened and found to be lined with a thin, smooth, glistening

membrane similar to the peritoneum. The finger introduced into the sac passed readily into the abdominal cavity. The sac was freed from the round ligament, the neck tied off and the whole excised. The inguinal canal was restored with chromicized cat-gut and the skin was sutured with silkworm gut. Convalescence was uneventful. The wound healed rapidly and the patient was discharged cured.

The analysis of the fluid by Dr A. I. Ludlow showed the following: Quantity 375 cc., clear, light amber, specific gravity 1016, coagulated at 73° C., faintly alkaline; microscopically, an occasional red blood-cell was found; there were no crystals.

Hydrocele of the canal of Nuck is a rare and interesting condition and is of some practical importance. It consists of a collection of fluid in the canal of Nuck, a tubular process of peritoneum which occasionally accompanies the round ligament through the inguinal canal. This process of peritoneum may or may not communicate with the abdominal cavity, according to whether its neck is obliterated or not, either by the normal process or by inflammation. In the fetus this process of peritoneum exists normally passing through the inguinal canal in the female in a manner analogous to the process of peritoneum in the male fetus which forms the tunica vaginalis of the testicle. In the male this process normally closes above only, leaving the tunica vaginalis a closed sac of serous membrane entirely separate from the peritoneum from which it was derived. Failure of a portion of the process which is normally obliterated to close permits the formation of the various types of hydrocele of the cord. In the female the tubular process of peritoneum normally closes completely, there being, of course, no tunica vaginalis. Failure to close in the whole or any part of its course leaves sacs of peritoneum which may become distended by the secretion of fluid, and which are in every way analogous to hydroceles of the cord in males.

Hydrocele of the canal of Nuck may appear in two varieties. If the canal is patent its entire length or closed at its distal portion only, the cavity of the sac will communicate with the cavity of the abdomen. In this class of cases the fluid will usually, but not always, as shown by the present case, flow back into the abdomen on recumbency or pressure. If the upper part or neck of the process is obliterated the fluid cannot be forced into the abdomen. In the records of 14 cases examined four were reducible until a short time before operation, from six days to two weeks; eight were never reducible, and in two cases no statement was made.

It will be noted that in the present case, although the fluid was not reducible into the abdominal cavity, a passage existed which admitted a finger. This is explained by the existence of a valve of peritoneum. The presence of such a valve is well shown

by one of Hennig's cases.¹ In this instance a laparotomy was about to be done on a woman with an ovarian cyst and free fluid in the abdomen. During the struggle of anesthetization large hydroceles appeared in both inguinal canals. Under full anesthesia these hydroceles could not be reduced. This case was treated twice subsequently, by aspiration and injection of Lugol's solution, but without success. In the light of these cases it is evident that a certain number of hydrocele sacs may communicate with the abdomen although the fluid cannot be returned into that cavity.

Some authors have denied the existence of the canal of Nuck, but Coley² in his article on this subject gives the results of six observers who have examined 654 bodies for the canal and found it present in 146 cases, or in 22.3%. Cumston³ quotes the findings of four observers who examined 255 bodies and found the canal in 27 cases, or in 10.6%. This makes an average of 173 cases in 909 bodies examined by 10 observers, or a percentage of 19.0, a percentage too large to admit of any doubt as to the existence of the canal.

In spite of the relative frequency of the persistence of the canal of Nuck a collection of fluid there is comparatively rare. According to Coley⁴ the first case of this affection was reported by Aetius in 543 A. D. and the condition was well described and named by Scarpa (1747-1832). The treatment of the sac by excision was first recommended by Desault (1737-1762), but in spite of the early recognition and description of this lesion, the total number of reported cases is few. Hennig⁵ in 1884 could collect only 39 cases. A few years later, 1890, Wechsellmann⁶ increased the collection to 62 and in 1892 Coley⁷ added 30 new cases, including 14 of his own, making a total of 92 cases. I have found 13 cases not previously reported which, together with the present case, brings the total up to 106. Coley has had more cases than any other one operator, many having been sent to him for hernias.

Etiology: The predisposing cause is the patency of the canal of Nuck. In addition some immediate or exciting cause is necessary for only a very small percentage of women with a patent canal suffer from hydrocele. Trauma, menstrual disturbances, etc., have been assigned as causes but in a majority of cases no cause can be determined.

Symptoms: There are usually no subjective symptoms, the tumor being accidentally discovered. At times there is inconvenience from the size and situation of the tumor and occasionally discomfort or dragging pain from the stretching of the inguinal canal.

Diagnosis: The tumor appears at the external inguinal ring and may persist in that situation as a globular tumor or may

Observer.	Age.	M. or S.	Children.	Duration.	Side.	Size	Symptoms.	Treatment.	Result	Remarks.
1 Anderson: <i>Brit. Medical Journal</i> , 1885. I, 226	24	.....	.....	Several years.	R.	Orange.	None.	Asperation and incision. Tr. I.	Cured 3 months.	Seen 3 months later; no return. Not reducible.
2 Cumston: <i>Boston Med. and Surgical Journal</i> , 1897 CXXXVI, 278	63	M.	3	15 years.	R.	Hen's Egg.	None.	Excision.	.....	Diag. hernia. Said to have been reduced under ether.
3 Montgomery: <i>Therap Gazette</i> , 1895. XI, 724	26	.....	.....	3 years.	L.	Small.	.....	Excision.	.....	Diag. hernia. Reducible until 1 week before operation.
4 Smith: <i>Brit. Med. Journal</i> , 1894. II, 179.	63	.....	..	2 weeks.	L.	Pigeon's Egg.	.....	Excision.	Cured.	Diag. strangulated hernia. Sac filled with dark fluid and blood clot, probably from efforts at reduction.
5 Same.	38	.....	.....	2 days.	R.	3 inches long.	.....	Excision.	Cured.	Diag. femoral hernia. Not reducible
6 Same.	48	.....	.....	Some time.	L.	Walnut.	..	Excision.	Cured.	Diag. strangulated hernia. Attempted reduction under chloroform. Reducible until 6 days before operation.
7 Same.	6	.....	..	4 weeks.	L.	Walnut.	..	Excision.	Cured.	
8 Same.	63	.....	..	20 years.	L.	Hen's Egg	..	Excision.	Cured.	Reducible until 2 weeks before operation.
9 Hellier: <i>Brit. Med Journal</i> , 1897. I, 459	26	S.	.....	7 years.	R.	Hen's Egg.	.....	Excision.	.....	Not reducible.
10 Koll: <i>Centralblatt f. Gyn.</i> , 1898, 765.	32	.....	.....	.....	R.	Goose Egg.	.....	Excision.	Cured 18 days.	Diag. strangulated hernia. Taxis. Not reducible. Fluid bloody.
11 Same.	.....	.....	.....	Some time.	R.	Goose Egg.	.....	Excision.	.....	Diag. hernia. Wore a truss. Not reducible.
12 Same.	.....	.....	.....	.....	R.	Hen's Egg	.....	Excision.	Cured 16 days.	Diag. hernia. Not reducible.
13 White: <i>Univ. Med. Journal</i> , 1893. VI, 379.	29	M.	.....	2 weeks.	.....	Egg.	.....	Excision.	Cured 4 weeks.	Diag. incarcerated femoral hernia. Not reducible.
14 Allen.	46	M	2	10 years.	R.	9 x 12 cm.	.....	Excision.	Cured.	Not reducible.

descend into the labium. In the latter case a cord-like projection can usually be felt running up into the external ring. It is usually small and sessile, but may become large and pedunculated. On palpation the tumor is soft, elastic and fluctuating. There is no impulse on cough. The fluid can only occasionally be returned to the abdominal cavity, but when it does return it flows back steadily, and is not reduced suddenly with a gurgle as a hernia. The large tumors are translucent to light. The percussion note is flat.

Differential Diagnosis: The chief importance of this condition lies in the differential diagnosis. Of the 14 new cases collected there was an error in diagnosis in 10 instances. "Hernia" was the original diagnosis in four cases: "femoral hernia" in two cases; "strangulated hernia" in four cases, and the diagnosis was presumably correct in four cases. In two cases diagnosed as strangulated hernia attempts at reduction were made under anesthesia. The diagnosis was, in most instances, corrected before operation, but in some the error was not discovered until the operation. The chief cause of mistake lies in the fact that the condition is not generally known, being so rare, and therefore is not considered. Especial care must be taken in those cases in which the hydrocele was previously reducible but became irreducible and tender from inflammation and in cases in which vomiting takes place. In the latter a diagnosis can usually be made by the history, a careful physical examination and the lack of signs of intestinal obstruction: that is, patency of the bowels, lack of abnormal distension and the character of the vomitus.

Treatment: Attempts to obliterate the sac by aspiration and injecting irritating fluids, such as iodine, carbolic acid, etc., should not be made. This method is uncertain in its results and dangerous. By this treatment the extent of the inflammation cannot be controlled and may spread into the abdominal cavity through the patent canal. The best method is operation and excision of the sac and closing the dilated inguinal canal. Besides being safe and sure, it strengthens a weakened inguinal canal and lessens the liability to hernia.

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EDITORIAL

Disinfection and Reinfection in Diphtheria and Scarlet Fever

The report of the throat inspector of the Baltimore City Health Department, published in the October *Maryland Medical Journal*, contains some exceedingly interesting statistics.

Briefly stated the routine observed in that city is the placarding and quarantining of dwellings from which are reported cases of diphtheria, until cultures from the throat of the patient and the other inmates of the house are found negative. In case of the death of the patient negative cultures must be secured from all the other inmates of the house before the premises are declared free from infection and the house disinfected. The quarantine amounts to the exclusion of exposed children from public and Sunday Schools, and adults are expected to mingle with the public only as much as is absolutely necessary for their livelihood.

When negative cultures have been obtained from all the inmates of the quarantined house, the infected rooms are disinfected

with formaldehyd gas, control cultures being placed in the rooms during the process. If these cultures are negative the disinfection is considered effective; if not, the disinfection is repeated until they are negative. The same method is used in cases of scarlet fever.

The report quoted gives 1,163 disinfections for diphtheria and 957 for scarlet fever, subsequent to which reinfection took place in 34 instances following diphtheria and in 18 instances following scarlet fever, a reinfection percentage of 2.9 and 1.8 respectively. In discussing these figures the writer points out that of the 34 cases of reinfection in diphtheria, six showed positive control cultures after disinfection, and in five others the control cultures were missing or empty, thus accounting for 11 of the cases. Of the other 23, 20 occurred during the first month after disinfection and must be attributed to the original infection.

CAUSES OF REINFECTION

Several causes are suggested to account for this reinfection. Bits of membrane deposited on the nurse's clothing in coughing may be accidentally wiped off on furniture in other parts of the house unless she confines herself strictly to the patient's room. Further it is often impossible to compel the patient to stay in one room during convalescence until cultures from his throat are negative and thus he may spread infection over the house. Fumigation of the whole house is not required; it is only quarantined as a whole. Taking into account these obstacles to ideal disinfection, the writer remarks that the percentage of reinfection is gratifyingly small.

Of the 18 reinfections in scarlet fever, one control culture was positive and three missing. In the remaining 14, 78% of the reinfections took place in from one to three months. This greater length of time before reinfection in these cases over the diphtheria cases is accounted for by the longer period of incubation, and the longer period of infectiousness, especially in cases complicated by otitis, rhinitis, and suppurating glands.

From his experience the writer concludes that the formaldehyd method of disinfection is as a rule very effective, as shown by the small reinfection percentage. He also suggests that the smaller reinfection percentage in scarlet fever may show that its organism is less resistant to formaldehyd than the diphtheria bacillus.

This report appeals to us as a thoroughly creditable piece of municipal medical work, except for the palpably weak point, as the writer acknowledges, that the great majority of cases of rein-

fection followed because the lack of insistence on fumigation of the whole of the infected premises instead of single rooms. It is impossible to confine the infection to the rooms occupied by the patient during the course of the disease, to say nothing of the probability of the distribution of germs all over the house before the diagnosis was made.

CONDITIONS OBTAINING IN CLEVELAND

The interest inspired by the article which we have quoted led us to investigate the conditions which obtain in Cleveland. The regulations of quarantine of the Ohio Municipal Code for contagious diseases (P. 428, Sec. 2126 R. S.) provide that in quarantined houses the placard "shall remain in place until after the patient has been removed from such house, or has recovered and is no longer capable of communicating the disease, and the said house and contents thereof have been properly purified and disinfected by the board of health, and when other inmates of said house have been exposed to, and are liable to become ill of any of said diseases, for a period thereafter counting from the completion of disinfection—as follows, to wit: in diphtheria 14 days, . . . , in scarlet fever 10 days."

The law receives the following interpretation in this city. When a case is reported as "convalescent" by the attending physician, the whole of the house is disinfected immediately, if other children in the house have been exposed, with a second fumigation at the end of 14 days. Otherwise one disinfection is made at the end of 14 days.

The disinfection of the whole premises and the double fumigations are both commendable, but there seem to us to be several points in the system which should be corrected.

A MORE RIGID INTERPRETATION OF THE LAW IS DESIRED

The term "convalescent" is entirely too elastic, and it rests wholly with the attending physician to say when this stage has been reached. Negative cultures from the patient's throat are not always secured before the "convalescent" report is handed in, and thus the Board of Health often disinfects premises when the patient still has virulent bacilli in his throat. To correct this and to make operative that clause in the statute which provides that quarantine shall be continued "until the patient . . . is no longer capable of communicating the disease," we believe the Board should require negative cultures from the throats of both the patient and the other inmates of the house before quarantine is raised and disinfection is performed. This would involve in

many cases too great a hardship on the attending physician. We would accordingly advocate the appointment of a throat inspector whose duty would be to take these cultures, only in cases, however, in which the attending physician did not wish to do this himself, in order not to make such an appointment unacceptable to the profession. This has been adopted in Baltimore and has apparently worked out most successfully.

THE PERIOD OF QUARANTINE TOO SHORT

We further believe that the period of quarantine of 10 days after scarlet fever is entirely too short. It is a well known fact that the period of infectiousness in this disease is much longer than in diphtheria, yet the statute requires a shorter quarantine. In the Baltimore report it was shown that two-thirds of the reinfections in diphtheria took place within the first month, while 78% of the scarlet fever reinfections occurred after one month. This lengthening of quarantine is a matter not under control of the local Board of Health, and would require State legislation.

Unfortunately no statistics as to the number of reinfections following diphtheria and scarlet fever have been compiled by the Board of Health in this city. Probably this was due to the fact that this point was not as prominently suggested as in a city where control cultures are used, and it only serves as an additional argument for their adoption. We would accordingly recommend the following measures:

1. The requirement of negative cultures from the throats of the patient and all inmates of the quarantined house before attempting disinfection.
2. The appointment of a throat inspector to secure these cultures in cases where the attending physicians could not be expected to do so.
3. The use of control cultures in all disinfections.
4. A longer period of quarantine after convalescence in scarlet fever.

The Japanese Lesson in Military Hygiene

Any one who has read the intensely interesting series of articles by Mr Kennan, now appearing in the *Outlook*, which give one an insight into the wonderful preparedness and forehandedness of the Japanese in this campaign can well understand the success which accompanies their efforts in the field of military hygiene. The Japanese are apparently the first nation to recognize the true importance of the army medical corps.

In an address delivered before the Association of Military and Naval Surgeons, at St. Louis, in October, Major Louis L. Seaman, who has but recently returned from Manchuria and Japan, pointed out in a most striking way the really remarkable achievements of the Japanese medical field force in the present campaign. Major Seaman having served as a volunteer surgeon in our war with Spain, is fully cognizant of the conditions which prevailed in that brief campaign, and from his knowledge of the conditions at present existing in the Japanese Army is entitled to speak with authority. He declares that the Japanese medical officers have proved beyond doubt the preventability of typhoid fever and of dysentery.

In Manchuria Dr Seaman saw but three cases of typhoid fever and only an occasional case of dysentery. In his own words he declares that, "the conspicuously empty beds of the great Japanese hospitals voice more eloquently than words the most important lesson of the war." Dr Seaman tells us that the medical officer is omnipresent. Competent bacteriologists go forward with the advanced scouts, carrying the necessary apparatus for testing all sources of water-supply and even labeling all contaminated springs and wells so that there shall be no danger of infection to the army from this source. The temporary hospitals are erected upon sites chosen especially with an eye to perfect sanitation and hygiene. Indeed the carefullness with which this campaign is being conducted from a purely medical standpoint would be little short of marvelous were it merely an extensive army maneuver in time of peace. In the face of existing conditions it is wonderful beyond belief.

The keynote to the whole situation is contained in the remark made by a Japanese officer of rank to Dr Seaman. This officer said, "every man who dies in our army must fall on the field of battle." Was there ever a more pregnant sentence uttered in the midst of a campaign for life or death. May its lesson bear fruit in all the armies of the world.

Wholesale Drug Substitution

The announcement recently made in the daily press of the arrest of a number of men in New York City, who for years past have been conducting an enormous trade in wholesale drug substitutes, will be hailed with immense satisfaction by all reputable physicians and pharmacists.

It is difficult to understand how it has been possible for these

individuals to practice such extensive frauds over so long a period without detection, and the story of their operations and of the clever way in which they have hitherto covered up their nefarious practices is more suggestive of an Arabian night's tale than of twentieth century business methods.

The story of this exposure does not, unfortunately, reflect great credit upon the profession at large, for it is plain that without the connivance of a large number of so-called pharmacists and an equally large number of so-called physicians, any such financial profits as are hinted at would have been absolutely impossible. It is something of a parody on our boasted methods of organization that the unearthing of the entire scheme was the direct result of the efforts of a large drug house, roused to action not so much because of the dangers to the public as on account of the injury to their profitable trade.

We have no desire to go on record as advocates of either a high or a low tariff, but it has often seemed to us that our government deliberately sets a price upon smuggling and upon just this sort of humbuggery and substitution by maintaining the high duty at present in force upon certain of the coal-tar derivatives. Why should we be obliged to pay \$1.00 per ounce for phenacetin when the same quantity of this drug can be purchased across the Canadian border for less than half this sum?

The Expert Optician?

A certain firm of opticians in Cleveland apparently desire to figure among the charitable organizations of this city; neither do they wish to hide their light under a bushel, but proclaim in lengthy advertisements in the daily papers that theirs "is not a mercantile proposition," and that instead of confining their charitable actions to the City itself they will go forth into the surrounding country and "examine eyes free of charge." Nor will patients be urged or even asked to order glasses.

This sounds suspiciously like a "something for nothing proposition," and no doubt the world is still full of people anxious to accept such an attractive invitation. Even the department stores must have their "expert optician" who may or may not be able in a crude way to mechanically test the eyes for refraction, but to whom all the evidences of systemic disease must remain a sealed book.

Still others of these "expert opticians" have the effrontery to bid for the good-will of physicians while at the same time they

are actively competing with members of the medical profession and employing advertising methods most unethical. That their efforts are not in vain is evidenced by the fact that certain physicians do send them their work and there is a very strong suspicion that it is not always from disinterested motives. The advertisements of the quack specialists of venereal diseases are constantly in evidence in most of the daily papers. Periodically the publishers are seized with spasms of virtue and exclude these advertisements for a time but they relax their vigilance and the advertisements are again accepted with the stipulation of an increased charge for their insertion. This is too remunerative a source of income for the average daily paper to refuse and in default of any legal means at present available to curb the evil it is evident that our homes must be defiled by these foul announcements, which are often of such a size that attention cannot fail to be drawn to them.

The American Pharmaceutical Association

The fifty-second annual meeting of the American Pharmaceutical Association, which was held in Kansas City, September 5 to 10, was in every way a success. The attendance was large and there was a noticeably large addition to the membership of the Association. The meeting was presided over by Mr Lewis C. Hopp, of this city, he being the first Cleveland druggist to be so honored, and the fourth from Ohio.

To the American Pharmaceutical Association is largely due the advancement made in pharmacy in this country. In October, 1851, a meeting was called in New York to consider a law relating to the inspection of drugs at the Custom House. In 1852, the American Pharmaceutical Association was organized in Philadelphia, and from that day to the present time it has been active in uplifting pharmacy, and particularly in raising the standard of drugs. Meetings are held once a year at which the leading men in pharmacy come together for the purpose of considering and discussing scientific pharmacy, the preparing of formulas, etc. The Association is divided into four sections. In the scientific section papers of a scientific and technical nature are considered. The educational and legislative section deals with the education of the coming pharmacist, and with all national legislation affecting pharmacy, such as pure food and patent laws, particularly when they tend to further foreign as against American interests. The section on practical pharmacy and dispensing is

one of the most practical of the Association and considers the every-day work of the pharmacist at the prescription counter and in the laboratory. The commercial section considers questions wholly of a commercial character.

The American Pharmaceutical Association has been very active in the work on the United States Pharmacopeia so that today our Pharmacopeia is looked upon as an authority second to none in the world. The annual report published by the Association contains a review of the progress made in pharmacy in all countries during the year. As physicians are eligible to membership in this Association it is strange that more of our profession do not avail themselves of the advantage of this membership, if for no other purpose than securing this report.

The American Pharmaceutical Association has further been instrumental in the formation of State Associations and the enactment of pharmacy laws. At the present time 38 States have adopted uniform laws. The Association is also taking an active part in antinarcotic laws. The next meeting of the Association will be held in Atlantic City, in September, 1905.

Department of Therapeutics

CONDUCTED BY J. B. MCGEE, M. D.

Pneumonia:

The *Therapeutic Gazette*, for April, asserts that the majority of experienced observers are of the opinion that the mortality statistics in pneumonia are little if any better than those of 25 years ago. One by one the so-called specifics for pneumonia, such as venesection, veratrum viride, alcohol, digitalis, and more recently creosote and its various preparations, have failed to justify the claims of their advocates. As a matter of fact, we know but little of the means which are useful for combating pneumonia. As cardiac failure is the chief danger in pneumonia, recourse is always had to the cardiac stimulants in the latter stages when there are signs of circulatory weakness, but we know comparatively little of the effect of drugs upon the right ventricle. The fact that there is a marked difference in the action of cardiac stimulants upon the two sides of the heart seems to be proved by the small number of investigations that have been made upon the pulmonary circulation. For example, nitroglycerin which lowers the blood-pressure in the arterial system causes a distinct elevation of blood-pressure in the lungs. On the other hand it would seem that the great cardiac stimulant, digitalis, has but very little influence upon the right side of the heart. Therefore, until we have more definite knowledge of the effects of drugs upon the pulmonary circulation, the use of cardiac stimulants in pneumonia is like shooting in the dark, hoping that perchance we may achieve our aim, and yet ignorant of the reasons of our failure. As the pneumonia antitoxin has failed to justify the brilliant results which had been hoped for it, and as it seems impossible with our present knowledge to render the blood anti-

septic by the introduction of various germicides, the most promising line along which we may expect improvement in our methods of treating pneumonia is through studies of the effects of cardiac stimulants. Until we have gained definite knowledge of this action of this group of remedies upon the lesser circulation any great improvement in the mortality statistics of pneumonia, or, out of respect to those who object to mortality, any great difference in the number of individuals who recover need not be expected.

Pruritus Ani: A. B. Cooke, in the *New York and Philadelphia Medical Journal*, believes that pruritus ani is a symptom and not an essential disease, and hence the first requisite is removal of the cause. In the management of a case of pruritus ani, then, our effort must be to restore the patient to as nearly normal condition as possible at the same time that we endeavor to promote his comfort by local measures directed to the itching parts. The first-named object demands not only the correction of all sources of irritation in the rectum and neighboring organs, and the proper treatment of any constitutional disease found present, but at the same time, and seemingly just as important, the correction of faulty habits in life, regulation of the diet, the promotion of rest and sleep, the judicious administration of tonics, etc., and the inspiring of hope. Locally dilatation of the sphincters occasionally proves a very useful procedure, but the local conditions vary so greatly in different cases that Dr Cooke follows the rational plan of adopting the remedial measures to the special indications. He summarizes the essential features in the management of the local condition as (1) cleanliness; (2) protection of the parts from friction and irritation of all kinds; (3) local applications according to the indications of the individual case for the relief of itching and the restoration of the altered skin to normal; (4) in exceptional cases the destruction of the diseased skin, preferably with the chemical caustics.

Ergot: A. T. Livingston, in the *Journal of the American Medical Association* for August 27, gives the formulas which he has employed for the hypodermic administration of ergot. He has employed the drug for more than 30 years in a constantly widening sphere of application, has observed its exceptional therapeutic power, and has come to regard it as the one drug without which he would feel impotent in the practice of his profession. The indication for its use is a localized or more general state of abnormal relaxation of unstriated muscular fiber, and it is the best remedial agent we possess to tone the weak, relaxed or paralyzed unstriated fiber. He recommends it wherever this condition exists in febrile diseases, functional neuroses, vascular disease, as in shock, and to relieve or avoid nausea and vomiting after anesthesia. He recommends two formulas, and there are no serious objections to the use of either of them. The first which he has used long enough to test its keeping quality is solid extract of ergot, one dram, dissolved in one ounce of sterile distilled water. Filter this solution and afterward add two minims of the purest chloroform and shake gently. This solution sometimes stings a little while after being injected, but otherwise it is satisfactory. The second is one dram of solid extract of ergot dissolved in a saturated solution (about two grains to the ounce)

of chloretone in one ounce of sterile distilled water. After filtering the solution add two grains of chloretone and shake gently. This solution is the most satisfactory, for short periods, that he has ever used, but he is not assured that it will be perfectly preserved for a considerable time. The injection should be made slowly. He takes 5, 10, and sometimes even 15 minutes to apply it. In general it is much better to have the patient recumbent while receiving it and maintain that posture for half an hour or so after the injection. He recommends only the alcoholic solid extract, cautions against the acetic, and gives one-half to two drams of these solutions as the usual dose for an adult.

Chloretone:

In the *Therapeutic Gazette* for July (from *Liverpool Medico-Chirurgical Journal*), Hutton summarizes some therapeutic applications of chloretone. First, in the treatment of vomiting of pregnancy he found it efficient in five out of six cases. He at first employed doses of five grains in cachet or capsule, but latterly has found three grains sufficient, or even a tablespoonful of a saturated aqueous solution containing barely four grains to the ounce. It has been his rule to direct the first two or three doses to be taken at intervals of half an hour or 20 minutes if necessary, and subsequently at longer intervals, according to the sensations of the patients, placing a limit to the total number which might be taken. His experience is that seldom more than three doses are required, and after the first trial one dose is often sufficient on subsequent occasions. Second, he has found chloretone extremely useful in the sickness accompanying the menstrual period in many girls. Third, in seasickness its power as a preventive was shown in four cases under his observation. Fourth, chloretone gives relief of stomach pains, especially when of neurotic origin, exhibited in the same manner (preferably in solution). He has not tried the effect of chloretone on vomiting due to grave organic conditions, but there also he believes that it is useful. The drug acts no doubt by rapidly benumbing sensation in the stomach. It has a pleasant taste, produces an agreeable feeling of warmth, and the slight hypnotic effect produced by 12 or 15 grains frequently aids the process of relief. He believes that in cases of neurotic origin and in seasickness especially, the effect of the drug is enhanced if given with a confident assurance of its efficacy. His experience with chloretone as a hypnotic in doses of 15 to 20 grains has not been favorable.

Fever in Childhood:

E. W. Murray, in the *Medical News* for June 18, believes that before we consider the medicinal management of fever, that is, of lowering the temperature, we should analyze its cause carefully, note the immediate effects on the individual, whether dangerous to the organism or not, consider the probable features of fever, and also question if this is not nature's method of combating the toxicity of the germ or germ-products. The first question to ask in considering the treatment of a case is, is this temperature high enough to antagonize with remedial agents or not? If high, is it dangerous to life either immediately or remotely? We all know that the system can stand for a short time a temperature of 105° or even 106° without danger or damage, while a long-continued temperature of 101° is serious to the heart muscles and nervous system. The medicinal management of fever must be

governed by each individual case. Strychnin, caffen, cocain and atropin all raise the temperature by increasing muscular and cerebral activity, and the latter by reducing heat loss by preventing perspiration. Alcohol, nicotin and morphin diminish temperature; the first two by relaxing the blood-vessels and increasing perspiration, and the last by preventing glandular and molecular activity. Clinically, then, with high fever we should stimulate with alcohol, but with depression we should stimulate with strychnin. Phenacetin is the safest of the coal-tar products, so far as depression is concerned, but generally the use of cold in some form is more satisfactory. If the temperature, even though brief in duration, is so high as to be dangerous to life, as occurs in insolation, nothing is so effectual or is so likely to save life as immersion in a tub of cold water, gradually made colder by ice. In ordinary fevers, the food must be liquid and rather cool; in vomiting, cold; in respiratory diseases, warm; in collapse, hot. In toxic fevers he clears the digestive tract and keeps the fever under control by cold sponging, ice cap or rectal irrigations, and combats toxemia by aiding elimination.

Typhoid Fever: H. A. Hare, in the *Therapeutic Gazette* for September, believes that it is a grave mistake to confine patients suffering from typhoid fever to a purely milk diet. It is his custom to give all patients, after the first week of typhoid, from one to two soft boiled eggs a day in addition to the ordinary allowance of milk and to vary their diet by the use of curds and whey, rice which has been boiled to a pulp, barley, wheat, and oatmeal gruel, and a cup of corn starch with vanilla or some other flavoring substance of a like character. As a result he very rarely sees the marked ataxia which is so common a symptom in convalescence from typhoid fever. The patient's nutrition is so well served that he is but little more emaciated than many cases of acute pneumonia at the time of his recovery. Secondary complications, like furuncles and bed sores, are unknown, for by the use of a plentiful supply of food the patient's vital resistance is maintained to such a degree that simultaneous collateral infections do not take place. He states that the average convalescent case of typhoid fever is a fair mark for any infection because it is half starved. All these patients receive hydrochloric acid and pepsin when proteids are administered, and takadiastase and pancreatin when carbohydrates are used. He has never seen any bad symptoms arise as the result of this plan, and is quite sure that he has seen an immense amount of good follow. He is not friendly to the use of beef tea, believing that it acts as a first rate culture medium and frequently increases tympanites and diarrhea, the stools becoming fetid under its use. Before he fed his patients so well he used very much more alcohol than at present, and was firmly convinced that it did these patients good. He still uses it quite largely, but with good feeding he gets along with much less than formerly. He suggests that alcohol may do good in typhoid and other fevers of an asthenic type associated with bacteremia by increasing the bacteriolytic power of the blood.

X-Ray in Leukemia: In the *Journal of the American Medical Association* for September 24, J. A. Capps and J. V. Smith thus summarizes the value of the X-ray in leukemia: (1) The action of the X-ray in leukemia seems to be of two kinds, (a) a local influence on the spleen and glands which is characterized by an inflamma-

tory reaction and later by a breaking down and disintegration of the gland tissue; (b) the formation of toxins which have an inhibitory action on the manufacture of leukocytes by the bone marrow. It is well known that acute infections occurring in leukemia, such as pneumonia, septicemia, or terminal infections, tend to inhibit the production of white corpuscles and often cause a reduction in the size of the spleen or the gland tumors. The X-ray toxins may be compared to those produced by such infections. (2) In no recorded case of either lymphatic or splenomyelogenic leukemia has the spleen tumor entirely disappeared. (3) With the discontinuance of the X-ray the disease, after varying periods, tends to reassert itself. (4) Death may take place when the glands and spleen are smallest and when the white count is normal. (5) Acute cases seem to receive no benefit from the X-ray. (6) The chronic form of lymphatic leukemia responds to the X-ray even more promptly than the splenomyelogenic type. In every instance the glands rapidly softened and dwindled to small proportions. (7) The X-ray holds the disease process in abeyance, but probably is not curative. It is too soon, however, to say that persistent treatment of an early case may not give permanent relief.

Passiflora:

W. J. Stapleton, in the *Medical Council* for September (from the *Detroit Medical Journal*), states that he has used the *passiflora incarnata*, passion flower or May poppy with great success in insomnia, hysteria, neurasthenia, neuralgia, nervous and physical prostration and alcoholism. The preparation he has employed has been a concentrated tincture, the dose being 20 minims well diluted in water given at intervals of one to three hours, depending upon the case. In cases of nervousness, the result of pain, the drug is of no use, but in cases of mental unrest, worry and exhaustion, and in conditions of cerebral excitement, especially with a tendency to convulsions, and practically in children, it is an excellent remedy. In the muscular twitching of children, due to cerebral excitement, he gives it in 10 to 20 drop doses in water every hour for two or three hours every night. Its action is best obtained in cases of nervousness due to causes other than pain. It is not a narcotic but a nervine and sedative with no bad after-effects.

Opium:

T. D. Carothers, in the *Medical News* for June 18, emphasizes the danger of the use of opium in infancy. He quotes a recent text-book in which it is asserted that opium discretely given in small doses is safe and harmless in infancy and its action and effects are always transient. This position he believes is contrary to the experience of the profession, and he cites instances of two cases in which a mother gave large quantities of soothing syrup to children who in after life became neurotics, spirit and drug takers. There can be no doubt that continuous sedation, or palsy of the sensory centers in early life is never repaired. He asserts that the magnitude of this danger is not at present recognized. The routine and thoughtless prescription by the physician is often followed by grave disorders in later life. Opium, by covering up the pain signals, is not curative, but may be destructive in more ways than at present known, and this injury will only be recognized in the future. Too much caution cannot be given against the use of narcotics in infancy. Of these opium is probably the most dangerous, because it is so easily accessible and its effects are apparently so simple.

Academy of Medicine of Cleveland

The eighteenth regular meeting of the Clinical and Pathological section was held Friday, October 7. The chairman, Dr Hamann, was in the chair.

Dr Corlett presented two interesting cases of skin disease, one a child with prurigo as described by Hebra, and the other a child showing unilateral herpes with the remnants of a varicella eruption, and also impetigo.

Dr Bunts exhibited a case upon which he had operated for perforating duodenal ulcer. The symptoms had been referred to the appendix region, and a diagnosis of appendicitis had been made.

Dr J. J. Thomas showed the heart of a five weeks' old child in which there was both a patent foramen ovale and an incomplete interventricular septum.

Dr F. E. Bunts read a paper entitled "A Report of 50 Cases of Appendicitis and 50 Cases of Hernia with Reference to Albuminuria." (This paper will appear in the JOURNAL.) The paper was discussed by Drs G. Seeley Smith, Weir and Doolittle.

Dr Geo. Seeley Smith presented a paper on "Pyrexia in a Child from Mechanical Irritation and Temporary Occlusion of the Bowel." A child swallowed a quantity of cotton batting which 11 hours later produced severe symptoms of collapse with vomiting. These symptoms persisted until 22 hours after the cotton had been passed per rectum. The paper was discussed by Dr J. J. Thomas.

Book Reviews

Railway and Other Accidents with Relation to Injury and Disease of the Nervous System. A Book for Court Use by Allan McLane Hamilton, M. D., F. R. S. E.; late Clinical Professor of Mental Diseases in Cornell College; one of the Consulting Physicians of the Manhattan State Hospitals, etc. With 15 plates, two superimposed charts and 36 illustrations. William Wood & Co., New York, 1904.

The author says in his preface that he thinks a book of this kind and scope will be acceptable, for the reason that treatises on the subject of railway accidents have usually been written presenting one extreme view or the other on the side of the plaintiff or the defendant. He aims to give due weight to genuine results of injury and to point out methods of unearthing the frauds which have become so frequent in personal injury cases. He speaks from an experience of 30 years and makes free use of illustrative cases, both from his own practice and from the literature on the subject.

The aim and scope of the book are excellent. The illustrative cases are well chosen and add great interest to the remainder of the text. The style is conversational, easy, and the author shows the requisite familiarity with the subject. The defects of the book are those of haste and insufficient revision. These are especially serious in a work designed for court use, as this one is said to be. Lawyers deal in proof texts. The outcome of a case involving thousands of dollars may hinge on the clever use of an inaccurate or loose statement, so that it is especially necessary in a work of this kind to use language that cannot be misunderstood or misrepresented. Hamilton's work is full of evidences of careless proof-reading; one need give only a few examples. On page 60, one reads: "While all

three forms of anesthesia may at times be lost"; on page 244, "An amplification of this text"; on page 18, "The condition tardily and slowly grows in a manner already to which reference has been made." More serious than such errors as the above and inexcusable in a scientific work are such mistakes as the following: On page 31, a subjective sound of crackling is described as an illusion. On page 17, traumatic neurasthenia and hysteria are referred to as psychoses. Exception must also be taken to such statements as that on page 59, that the deeper reflexes may be absent in hysteric hemiplegia, and that ankle-clonus is very rare.

The errors, examples of which have been given above, are those attendant on the modern method of book-making by dictation. The style is pleasant and the book is in many ways more valuable than if it were drier and at the same time less concrete. It should, however, be thoroughly revised. It contains much that is of interest and value, is well printed and may, in general, be commended.

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- A Text-Book of Materia Medica, Including Laboratory Exercises in the Histologic and Chemic Examinations of Drugs. For Pharmaceutic and Medical Schools, and for Home Study. By Robert A. Hatcher, Ph. G., M. D., Instructor in Pharmacology in Cornell University Medical School of New York City; and Torald Sollmann, M. D., Assistant Professor in Pharmacology and Materia Medica in the Medical Department of the Western Reserve University of Cleveland. 12mo volume of about 400 pages, illustrated. Philadelphia, New York, London. W. B. Saunders & Co., 1904. Flexible leather, \$2.00 net.

This work is essentially a practical one and embodies much information not otherwise easily accessible. It places special stress upon laboratory exercises and covers the field of organic materia medica quite completely, and is a volume of convenient size. The therapeutic uses of each remedy are concisely stated and under digitalis attention is called to the fact that "it is absolutely criminal to make the infusion by diluting the fluid extract or tincture, since alcoholic or watery solutions contain the active principles in quite different relative proportions." Both the metric and apothecary systems are given and a posologic table and glossary add to its value. The volume consists of three parts, the first comprising a system of systematic study of crude drugs, the second describing plant histology, while the third is devoted to chemical exercises in materia medica. It is a most excellent work.

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- Principles and Practice of Gynecology. By E. C. Dudley, M. D. New (fourth) edition, thoroughly revised. Octavo, 770 pages, with 420 engravings, of which 50 are colored, and 16 full-page plates in colors and monochrome. Cloth, \$5.00 net; Leather, \$6.00 net; Half Morocco, \$6.50 net.

The former edition of this work was revised in these columns but a little over a year ago. The present edition shows numerous changes especially in the matter of illustrations. All borrowed cuts have been excluded, and, while some of these might have been retained with advantage, their loss has been more than equalled by the larger number of new ones. The minute description of the various stages of different operations by means of artistic cuts has always been a feature of this work, and it has been carried out more fully in each succeeding edition. The text shows constant evidences of revision and almost every chapter shows additions which have brought the work thoroughly up-to-date.

Physician vs. Bacteriologist. By Professor Dr O. Rosenbach. Authorized translation from the German by Achilles Rose, M. D. New York and London. Funk & Wagnalls Company, 1904. 12mo, pp. xiv-462. Cloth, \$1.50.

The translator in his preface says that the author "appreciates fully the value of bacteriology as a biological science, and the importance of the study of the microscopical world. He is well aware what surprising biological information and what important methods are to be found in the study of bacteriology, but he raises his voice against the unjustified, the unwarranted claims of the bacteriologists, especially of those whom he calls 'nothing-but-bacteriologists,' the diagnosticians *in absentia*, with their disinfectants and measures based on unsupported theory."

The author makes many statements in his arguments which are perfectly true. If he had been content with this, he would have been convincing. It is a pity, however, that he goes on to discredit measures and methods which are now accepted by even the conservative, to such a degree as to forfeit the patient consideration of the reviewer whose sympathy he at first enlists. It seems to us that such a book will exert a pernicious influence, especially on that class of readers who are too willing to accept opposition arguments, and who are without the ability to recognize their fallacies.

A Medical Epitome Series—Surgery. A Manual for Students and Practitioners by M. D'Arcy Magee, A. M., M. D., Demonstrator of Surgery in the Georgetown University Medical School, and Wallace Johnson, Ph. D., M. D., Demonstrator of Pathology and Bacteriology in Georgetown University Medical School. Edited by V. C. Pedersen, A. M., M. D., of the New York Polyclinic Medical School and Hospital. 289 pages, 129 engravings. Lea Brothers and Co., Philadelphia and New York, 1904.

The authors have attempted to condense the principles of surgery into a very brief space and to secure this it seems to the reviewer that they have sacrificed necessary information, a fault common to many books of this sort. A really excellent and well illustrated chapter on X-Rays in Surgery is contributed by Dr Edward Parker, of New York City.

The Practical Medical Series of Year Books Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume VI, General Medicine, Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago; and J. H. Salisbury, M. D., Professor of Medicine, Chicago Clinical School. May, 1904, Chicago. The Year Book Publishers, 40 Dearborn Street.

The publishers announce that the volume under consideration is one of a series of ten issued at monthly intervals, covering the entire field of medicine and surgery. It is claimed that each volume is complete for the year prior to its publication on the subject of which it treats. We find such volumes of great assistance in reviewing medical literature, since an abstract affords a very much more reliable guide to the contents of an article than does its title alone. The able editorial supervision of this volume on general medicine warrants an expectation that its abstracts will

be well made, and that a certain amount of discrimination will be manifested in the choice of articles for review or in the comments upon them. In this we are not disappointed. The field selected seems to have been very fully covered, and the resultant volume, which is of small size, with its clear type and opaque paper is very convenient to the hand and easy to read.

A Text-Book of Diseases of Women. By Charles B. Penrose, M. D., Ph.D., formerly Professor of Gynecology in the University of Pennsylvania. Fifth edition, thoroughly revised. Octavo volume of 539 pages, with 221 fine original illustrations. Philadelphia, New York, London. W. B. Saunders & Company, 1904. Cloth, \$3.75 net.

This work has been written especially for the student and it therefore presents the subject in as simple a manner as possible. Every effort has been made to carry out this idea, and as a result one method of treatment is usually recommended in preference to giving a number. The chapters on the mechanism of the support of the uterus, and the use of the pessary are especially useful. The value of this work is shown by the fact that it is so frequently recommended as a text-book in the medical colleges of this country.

Practical Application of the Röntgen Rays in Therapeutics and Diagnosis. By William Allen Pusey, A. M., M. D., Professor of Dermatology in the University of Illinois, and Eugene W. Caldwell, B. S., Director of the Edward N. Gibbs Memorial X-ray Laboratory of the University and Bellevue Hospital Medical College, New York. Second edition, thoroughly revised and enlarged, with 195 illustrations, 690 pages, including four colored plates. Philadelphia, New York, London. W. B. Saunders & Co., 1904. Cloth, \$5.00; Sheep or Half Morocco, \$6.00.

The fact that a second edition of this work has been demanded within a year of its first appearance shows that the book has been adopted as a standard. It possesses the double value of presenting not only the indications for the clinical application of the X-ray, but also detailed instruction in technic. The case histories first presented in the former edition have been followed through in the later, giving the results of treatment consistently carried out and over long periods of time. Excellent photographs illustrate various stages of improvement in the cases, and seem to justify the conservative claims the authors make as to results to be expected from Röntgen ray therapy.

Taylor on Genito-Urinary and Venereal Diseases and Syphilis. A practical treatise for students and practitioners. By Robert W. Taylor, A. M., M. D., Clinical Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York. New (3d) edition. Revised and enlarged. Octavo, 757 pages, with 163 illustrations and 39 plates in colors and monochrome. Cloth, \$5.00; leather, \$6.00; half morocco, \$6.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1904.

The fact that this is the third edition of this work is evidence of its popularity and worth. The author has given a thorough and systematic description of the subjects treated in this volume with commendable brevity and clearness, and has presented us with up-to-date, trustworthy, practical information. The text has been thoroughly revised and many new sections have been added throughout the work, with the view of presenting the salient phases of progress.

The subject of gonorrhea in all its phases has been exhaustively given with full directions for practical and judicious treatment. Attention has been called to the fallacies and dangers in some of the views nowadays advanced in the therapeutics of this disease, and an emphatic protest against them has been made.

Syphilis in all its conditions and relations has been comprehensively considered and much care has been exercised in the concise presentation of a practical, methodical course of treatment.

Due attention has been paid to the description of the different operations upon the genito-urinary system, and the various new operative procedures will also be found.

The Theory and Practice of Infant Feeding, with Notes on Development. By Henry Dwight Chapin, A. M., M. D., Professor of Diseases of Children at the New York Post-Graduate Medical School and Hospital; Attending Physician to the Post-Graduate, Willard Parker and Riverside Hospitals; Consulting Physician to the Randall's Island Hospital. Second edition, revised, with numerous illustrations. New York. William Wood & Company. 1904.

The second edition of Dr Chapin's "Theory and Practice of Infant Feeding" is a consideration of the subject from every conceivable standpoint. The first part of the book is a comparative study of the natural feeding and growth of young mammals, and while it is interesting to the special student, it contains much that would appear irrelevant to the average practitioner.

The chapter on cow's milk is complete and essentially practical, and in it will be found an exposition of the most recent work in the bacteriology, care and preparation of milk for use as an infant food. The later chapters dealing with the actual feeding of the child in health and disease are thoroughly practical but contain little that is new. Altogether the book is an excellent contribution and cannot but prove useful to anyone interested in the subject.

Association of Assistant Physicians of the Ohio State Hospitals

The Fourth Session of the Association of Assistant Physicians of the Ohio State Hospitals was held at the Columbus State Hospital, Columbus, Ohio, October 5 and 6, 1904.

AFTERNOON MEETING, OCTOBER 5

Dr George Stockton, Superintendent of the Columbus State Hospital, made a short address of welcome.

William W. Richardson, of Columbus, presented a patient and gave full clinical details in which a diagnosis of syringomyelia had been made.

Isabel A. Bradley, of Columbus, presented three brain tumors. Two were sarcomas involving the left frontal lobes. The third was a large glioma occupying both lateral ventricles and involving the corpus callosum, fornix, and septum lucidum.

E. E. Gaver, Columbus, gave a brief report of eight cases of tuberculosis treated in the open air colony at the Columbus State Hospital.

Guy H. Williams, Columbus, showed the pathologic specimens from a

case of sudden death, found at autopsy to be due to an aneurism of the heart.

G. T. Harding, Jr., of Columbus, exhibited a patient, nine years old, with slight hereditary predisposition, showing psychical attacks varying from short periods of depression to spells of subconsciousness of several hours' duration, in which the child acts very differently from her normal self. The attacks are preceded and accompanied by a slight rise of temperature, excessive action of the heart, and a feeling of sickness over the sternum. A tentative diagnosis of psychical epilepsy is made.

Ralph W. Holmes, of Gallipolis, read a paper entitled "Clinical Observations of Status Epilepticus." This paper was discussed by Drs E. E. Gaver, F. D. Ferneau, G. T. Harding, Jr., I. A. Bradley, and R. W. Holmes.

Guy H. Williams, of Columbus, read a paper entitled "Arteriosclerosis of the Brain, with Report of Case with Autopsy." Drs N. H. Young, G. T. Harding, Jr., E. E. Gaver, W. H. Pritchard, I. A. Bradley, and G. H. Williams discussed the paper.

MORNING MEETING, OCTOBER 6

Mary E. Cadwallader, of Dayton, read a paper entitled "A Report of Two Cases of Insanity of Pregnancy and Puerperium." The discussion was by Drs Ferneau, Harding, and Cadwallader.

Paper: "Laboratory Aids in the Rapid Diagnosis of Hydrophobia," by Dr Walter H. Buhlig, of Gallipolis, was read. Discussion by Drs I. A. Bradley, K. S. West, F. D. Ferneau, R. W. Holmes, and W. H. Pritchard.

Following the completion of the program the business of the Association was taken up. Dr Isabel A Bradley, of Columbus, reported the work of the dietary committee. This committee was enlarged to include one member from each State Hospital. Dr E. E. Gaver, of Columbus, reported the work of the legislative committee. Dr Ralph W. Holmes, of Gallipolis, chairman of special committee to represent the Association at the Cleveland meeting of the Ohio State Medical Association, reported the passage by that body of the following resolution: Resolved—That the Ohio State Medical Association hereby expresses its approval and endorsement of the object and work of the Association of Assistant Physicians of the Ohio State Hospitals.

Drs W. C. Kendig and J. W. Mann, of Longview Hospital, Cincinnati, and Drs E. B. Morrison and Arthur G. Holmick, of Gallipolis, were elected to active membership.

The next session will be held at the Dayton State Hospital, Dayton, Ohio, April 5 and 6, 1905.

RALPH W. HOLMES, Secretary.

The officers elected at the 30th annual meeting of the Mississippi Valley Medical Association, held at Cincinnati, Ohio, October 11 to 13, are as follows: President, Bransford Lewis, St. Louis; first vicepresident, Frank Parsons Norbury, Jacksonville, Ill.; second vicepresident, J. H. Carstens, Detroit, Mich.; secretary, Henry Enos Tuley, Louisville, Ky.; assistant secretary, John F. Barnhill, Indianapolis, Ind.; treasurer, S. C. Stanton, Chicago, Ill.

Ohio Valley Medical Association

The sixth annual meeting of the Ohio Valley Medical Association will be held at Evansville, Indiana, on November 9 and 10, under the presidency of Dr A. M. Hayden. This Association having for its boundary Kentucky and Indiana, Illinois and Ohio, has almost an unparallel history for growth and development. Besides an excellent program of essays, arrangements have been made to have one of the best clinicians of Chicago to hold a clinic on some subject in internal medicine on the afternoon of the first day. Dr Chas. A. L. Reed, of Cincinnati, one of the foremost orators in the medical profession today, will be the guest of the Association, and will deliver the annual address on the evening of November 9. This with the President's retiring address will constitute the evening program after which the profession of Evansville will give their visiting brethren a social good time.

The second annual meeting of the Ninth District Medical Association will be held at Portsmouth, Ohio, Thursday, November 3, 1904. The program is as follows: "Pneumonia," W. H. Henry, Hamden Junction; "The Management of Abortion," Joseph H. Ray, Coalton; "Endometritis," Ella G. Lupton, Gallipolis; "The Pathology and Treatment of Internal Hemorrhoids," Wells Teachnor, Columbus; "Wound Infection," E. W. Tidd, Stockdale; "Biliary Obstruction," Dan Gray, Ironton; "Plea for Earlier Diagnosis and Surgical Intervention for Infection of Biliary Tracts," Edwin Ricketts, Cincinnati.

Correspondence

Cleveland, O., Oct. 18, 1904.

EDITOR CLEVELAND MEDICAL JOURNAL: Will you kindly correct the report which has gotten out that the Willson Avenue Home for Graduate Nurses is broken up? It is not broken up. It is still doing business over the same 'phones and at the same address.

We found it necessary to make a few changes and through some source the impression has been pretty thoroughly spread that we have discontinued business.

We are still admitting graduate nurses at No. 712 Willson, and can furnish nurses from many different schools. We also take calls for experienced nurses which we make a special effort to fill. Trusting this correction may appear in your next issue, we remain,

Yours very truly,

MISSES YATES AND SPENCER.

Recent Additions to the Cleveland Medical Library

By purchase—Adolescence, Its Psychology and Relation to Physiology, etc., 2 Vols., by G. Stanley Hall, 1904; System of Practical Surgery, Vol. 3, by Von Bergmann and W. T. Bull, 1904; The Human Machine, Its Care and Repair, by W. E. McVey, 1902; Progressive Medicine for March, June and September, 1904; Beiträge zur Klinischen Chirurgie, Vols. 39 to 45 (complete files to date); Obstetrics, by J. W. Williams, 1903; Rational Hydrotherapy, by J. H. Kellogg, 1903; The Practical Application of the Roentgen Rays in Therapeutics and Diagnosis, by A. M. Pusey and E. W. Caldwell, 1903; Reference Handbook of the Medical Sciences, Vol. 8, A. H. Buck, Editor.

Books and Journals Donated—By J. J. Thomas, Holmes' System of Surgery, Vols. 1, 2, 3, 1881, Reynolds' System of Medicine, Vols. 1, 2, 3, 1880; Mrs I. N. Perrier, 14 bound volumes medical works, also journals; Association of Medical Librarians, Berliner Klinische Wochenschrift, 1869 to 1881; Dr M. Rosenwasser, 105 bound volumes medical works; Surgeon General U. S. A., Index Catalogue Surgeon General's Library, Second Series, Vol. 9, 1904; U. S. Marine Hospital Service, Weekly Public Health Reports, Vol. 18, 1903; Cleveland Medical Journal, 180 numbers current journals, and Transactions of the American Electro-Therapeutic Association, 1901; Dr R. H. Boggs, Secy., Transactions of "The American Roentgen Ray Society, 1903; Dr E. P. Carter, 8 volumes medical works; Dr H. Mitchell, Report State Board of Health, New Jersey, 1903; Dr L. E. Holt, Bacteriological and Clinical Studies of the Diarrheal Diseases of Infancy, from the Rockefeller Institute for Medical Research, 1904; Dr F. C. Herrick, 350 volumes medical works and walnut book case, 12 pamphlets by W. O. Atwater and others from the U. S. Bureau of Agriculture; Miss B. F. Arnold, American Journal of Nursing, Vols. 3, 4, 1903, 1904; Dr G. C. Russell, 40 volumes medical works; Dr C. A. Hamann, Journal of Medical Research, Vol. 12, Parts 1 and 2, 1904; Dr E. F. Cushing, 12 volumes (bound) British Medical Journal, 1891-1897, 4 volumes of Journals (unbound).

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Clinical Studies in Arteriosclerosis

BY ALFRED STENGEL, M. D.

Professor of Clinical Medicine, University of Pennsylvania

Arteriosclerosis is a pathologic condition of such extent and presents itself under so many guises that it would be impossible to present the clinical features in the compass of a paper of ordinary length. It is not, therefore, my purpose to discuss the symptoms fully, but only to touch upon some of those which have impressed themselves upon my mind as important in diagnosis. With regard to the latter I am more interested in the early recognition of the disease than in the diagnosis made when secondary alterations have occurred in various organs of the body. It is no doubt true that much may be accomplished by treatment even in the late stages and a recognition of the disease at any period is desirable. If, however, the process is to be arrested or cured, the initial manifestations must be recognized.

My clinical studies have impressed upon me the belief that there is a wide divergence in the nature of arteriosclerosis developed in the presenile period as a result of more or less well recognized causes and that which occurs during true senile involution. I cannot enter at length upon this phase of the subject now as it does not, strictly speaking, belong to the clinical side of the question, but I will add only that my conception of the senile form of disease is one of a process that is essentially diffuse and, perhaps, involves the extravascular tissues simultaneously with the vascular apparatus, while the presenile form or pathologic arteriosclerosis is in the beginning a disease of the blood-vessels alone. There seems also to be some difference in the character and distribution of the lesions. Possibly as a result of this restricted involvement of the vessels and the character of the lesions, degenerative changes in the organs are much more rapid of evolution than in the senile type of arteriosclerosis, and a rapid clinical

course is more likely to occur. Clinicians will readily recall cases in which the symptoms appeared abruptly after some shock or strain, mental or physical, and in which the whole clinical course was that of a severe, even a malignant, process. Indeed, I have known such cases to be mistaken for obscure carcinoma until the autopsy disclosed the real nature of the disease and the absence of cancer.

Among the clinical conditions to which I wish to call attention are the alterations in the blood, the changes in the character of the urine, the condition of the skin and the cardiovascular phenomena.

With regard to the conditions of the blood, I have long been impressed with the importance of recognizing the existence of a spurious anemia in arteriosclerosis and have in several places discussed this symptom. In the later stages of the senile form, and to a less extent in the pathologic or presenile type, the patient's color becomes an ashy white that suggests cachexia or at least a high grade of anemia; yet in these cases examination of the blood shows no commensurate reduction in the number of corpuscles or the coloring matter.

The following figures give a clear idea of the disproportion between the character of the blood and the apparent anemia. These patients were all decidedly pallid and some were supposed to be very anemic until the blood examination revealed the true condition:

	Hemoglobin.	Erythrocytes.	Leukocytes.
1. J. M. S.....	82 per cent.	.....	.....
2. M. R.	90 "	.....	8,650
3. B. R.	88 "	5,340,000	10,000
4. C. L. P.	80 "	4,960,000	7,950
5. W. J. C.	85 "	5,280,000	5,700
6. S. N.	90 "	5,030,000	.....
7. W. H. I.	80 "	.....	.....
8. C. A. G.	90 "	4,820,000	8,342
9. C. A. C.	85 "	.....	.....
10. C. B.	90 "	5,030,000	3,624
11. D. B.	95 "	.....	.....
12. C. D. B.	90 "	4,320,000	12,000
13. A. G.	85 "	6,060,000	9,920
14. J. H.	77 "	5,300,000	12,000
15. McT.	79 "	4,490,000	9,240
16. R. E.	73 "	5,100,000	8,000
17. A. K.	83 "	5,690,000	9,760
18. Dr. H. B. R.	88 "	5,340,000	10,048
19. Mrs. B.	75 "	4,680,000	8,150

Most of the cases included in the above table were fairly advanced at the time of the examination. I have found, however, that pallor without corresponding anemia is sufficiently

striking, even in the earlier stages of the disease, to constitute a combination of conditions of some value in diagnosis.

The explanation of this condition would form an interesting study. I have always believed that the cause lies in contracted vascular channels which occasions the pallid appearance, though it does not affect the constitution of the blood. An analogy is found in the early anemia of persons who have recently taken up their residence in tropical countries and in whom pallor without corresponding anemia is frequently encountered. Very similarly some cases of spurious anemia developed as a result of nervous influences have been reported.

The condition of the urine in arteriosclerosis is by no means a uniform one at any stage of the disease and presents no positive criteria for diagnosis. Nevertheless there are certain peculiarities that are sometimes suggestive. Among other changes I have been struck with the tendency to variability in the specific gravity and in the quantity without reference to the quantity of liquid consumed. A wide variability in the specific gravity between the morning and evening specimen has been particularly striking in some cases and seems to me to be met with in a considerable proportion of the cases during the earlier stages. The amount of water in the urine is so distinctly dependent upon vascular conditions that it does not seem surprising to find great fluctuations in a condition in which some alteration of the small blood-vessels and capillaries may be assumed to be present. My own view inclines strongly to the recognition of capillary lesions in the early period of arteriosclerosis, and if such were present marked fluctuations could readily occur in the excretion of water. These fluctuations in the specific gravity frequently antedate the first appearance of a slight trace of albumin which sooner or later gives evidence of the existence of renal change. The following table taken from some recent cases of early and late arterial disease is instructive:

Urine.

1.	W. P. W. ..	{ M. 1016 E. 1034 }	Traces of albumin at times.
2.	J. S. Worth	{ M. 1014 E. 1024 }	Traces of albumin at times.
3.	Dr H. R. ..	{ M. 1018 E. 1030 }	Faint trace; few hyaline casts at times.
4.	W. J. O. ..	{ M. 1020 E. 1026 }	Trace at times; hyaline casts.
5.	S. A. K. ...	{ M. 1008 E. 1024 }	Trace at times; no casts; few red blood cor- puscles.
6.	B. F. C. ...	{ M. 1018 E. 1030 }	Trace at times.
7.	J. W. C. ...	{ M. 1016 E. 1024 }	Occasional trace.

Glycosuria is met with sufficiently often in arteriosclerosis to be regarded as a possible consequence of that condition. My observations seem to indicate that it occurs in the middle period of the disease, and disappears later, though sometimes it is met with quite early. There is a marked contrast in the frequency of occurrence of this symptom between the presenile and the senile form of arteriosclerosis. In the latter type I have much more rarely met with transient or recurring glycosuria.

The behavior of the sweat glands is somewhat similar to that of the kidneys. A tendency to paroxysmal sweating of marked character occurs in a considerable proportion of the cases and is almost exclusively a symptom of the earlier period. At the same time in the disease a slight puffiness or edema occurs in some instances. These conditions are scarcely marked enough to be of much value in diagnosis, but it is important to recognize their occurrence as consequences of simple arteriosclerosis because they are so frequently attributed to other and, perhaps, graver conditions.

Cardiovascular Conditions. Particular interest centers in the study of the circulatory phenomena and especially in the study of the blood pressure. The direct examination of the pulse with the finger enables the clinician to determine roughly the state of the arterial pressure and until recently no more accurate means were available. The sphygmograph had, indeed, been used and with some success by those especially skilled in its employment, but was generally discredited, though I believe without sufficient justification. Properly used this instrument is a valuable aid in the study of blood pressure. Other forms of apparatus, however, have superseded it and give more reliable information regarding the pressure. These instruments give two distinct sorts of data. The von Basch sphygmomanometer and similar instruments record the maximum or systolic pressure; the Hill and Barnard apparatus indicates the diastolic pressure. None of the earlier methods recorded both systolic and diastolic pressure, and in consequence their value in the study of peripheral circulatory conditions is comparatively small. Gumprecht, von Recklinghausen and T. Janeway devised modifications of the old methods by which both systolic and diastolic pressure may be determined, and my associate, Dr. Stanton, has constructed an apparatus which is more satisfactory for clinical purposes than any other now available. It needs little discussion to prove that the single determination of either systolic (Riva-Rocci, Gärtner) or diastolic pressure (Hill and Barnard) is comparatively value-

less. Neither gives a correct estimate of the actual condition of the circulation or of the mean pressure.

A record of the high and low pressure more accurately indicates the probable mean pressure, though, of course, it does not permit of a positive determination of the mean since the duration of the high and low point would determine the relative value of the figures in estimating the mean. However, a knowledge of the systolic and diastolic pressure indicates approximately the general condition of the circulation.

Much has been written about the blood pressure in arteriosclerosis and in senility. German authorities following von Basch look upon continued high pressure as an evidence of established arteriosclerosis; while, on the other hand, certain English writers, notably Allbutt, believe there is a presclerotic stage of arteriosclerosis in which occasional or continued high pressure is produced by increased viscosity of the blood or by irritative spasm of the arterioles.

The whole work of determining the relation of blood pressure to arteriosclerosis needs thorough revision. In view of what I have said about the determinations of high, low, and mean pressure, records of systolic pressure are significant mainly of the capacity of the left ventricle while diastolic pressure indicates the degree of peripheral resistance and the elasticity of the larger vessels. The combination may be helpful in determining the circulatory conditions both at the centre and the periphery.

My own observations in determining the pressure in established arteriosclerosis have shown a retained pressure between the systoles, that is to say, a comparatively high diastolic pressure. The following figures selected from many observations will indicate my point:

C. A. G.	systolic	150	diastolic	105
J. C.	"	150	"	100
J. C. W.	"	195	"	155
C. H. T. (1).....	"	125	"	85
" (2).....	"	105	"	75
" (3).....	"	100	"	87

I have selected these records out of others for the reason that they indicate the conditions of pressure when the systolic pressure is high as well as when it is low. In the case of C. H. T. it will be observed that the systolic pressure was consistently low, but the diastolic pressure was comparatively maintained, or, to state it in another way, the diastolic pressure was relatively excessive. This case was one of well-marked general arterio-

sclerosis. The average pressures obtained with the instrument I have employed are for adults, about 140 to 160 systolic and 75 to 85 diastolic. In conditions in which the blood pressure becomes generally depressed both the systolic and diastolic pressure sink. It will be observed in the figures of the case of C. H. T. that the systolic pressure did fall, but the diastolic pressure remained fairly established. This observation is in entire accord with pathologic knowledge of the location of the principal changes in arteriosclerosis. The smaller blood-vessels, arterioles and probably capillaries, are the principal seat of change, and in consequence so long as the aorta and the larger vessels retain a certain degree of elasticity, which I believe is true up to a very late stage in the disease, so long will the diastolic pressure be sustained. If the elasticity of the large vessels were wholly destroyed the diastolic pressure would fall to a minimum.

The instrumental estimation of the blood-pressure will be seen to possess special advantages for the reason that it permits of a determination of sustained arterial tone when the mean pressure is unquestionably reduced to the point which makes accurate determinations with the palpating finger impossible.

Auscultatory Phenomena. I wish to allude very briefly to an auscultatory condition that appears to me of essential importance in the earlier stages of arteriosclerosis, namely, the peculiar prolongation of the first heart sound. Just as in aortic stenosis, in which the resistance to the outflow of blood is close at hand, the heart's systole becomes slow and labored, so in arteriosclerosis to a less degree a prolonged systole is the rule. This is determined with some accuracy by the character of the first heart sound. It contrasts sharply with the peculiar slapping sound of the later stages of the disease when the left ventricle has become overtaxed and has dilated. I cannot better describe the character of the sounds I have in mind than to say that it resembles that which results from the too energetic administration of digitalis. Murmurs and accentuation of the second sound of the heart are later and less important phenomena, though, perhaps, more certainly indicative. This, however, is true of all the symptoms; the early signs are uncertain ones, though on careful study they give some indication of the beginnings of the disease.

The Value of Various Methods of Estimating Total Nitrogen, Ammonia and Urea in the Urine

BY HOWARD D. HASKINS, M. D., CLEVELAND

The ample justification of this paper is the prevalent haziness of ideas on the part of clinicians as to the scientific methods of studying body metabolism. A further reason for its presentation is the fact that the most satisfactory method of estimating ammonia and that the most accurate urea methods are so recent that a description of them is not to be found in text-books.

The method of estimating the total amount of nitrogen present in the urine is called the Kjeldahl method. Kjeldahl¹ published his method in 1883, and it has been accepted as sufficiently accurate for many years. Recently, however, Kutscher and Steudel² criticised this method, attempting to show that it was unreliable. Other investigators³ immediately disproved these findings, and reaffirmed, on experimental evidence, the accuracy of the method.

The Kjeldahl method, as originally carried out, consisted in heating the nitrogenous substance with concentrated sulphuric acid until the acid, which turned black or brown at first, became colorless, then adding a little potassium permanganate and distilling the acid-mixture with an excess of alkali. The acid and the permanganate change the nitrogen into ammonia which combines with the acid. This ammonium sulphate is decomposed by the alkali and all the ammonia is contained in the distillate. The details of the method are given below.

Wilfarth⁴ found that the addition of certain copper, iron, or mercury compounds to the sulphuric acid greatly hastened the oxidation process. He used, by preference, metallic mercury, which dissolved in the acid during the heating. When distilling off the ammonia he added 12 c.c. of strong potassium sulphid solution besides the alkali, and caught the distillate in special receiving bulbs.

Gunning's⁵ modification of the process consists in adding potassium sulphate or pyrosulphate to the acid after the mercury has dissolved. The pyrosulphate—the sulphate also becomes pyrosulphate—greatly intensifies the oxidizing action of the acid.

The use of mercury has been condemned by some because of the formation of a mercurammonium sulphate $(\text{NHg}_2)_2 \text{SO}_4$, which is not decomposed by an alkali, but if potassium sulphid

is added in excess, all of the mercury is precipitated and the ammonia is released. Furthermore, as a matter of fact, accurate results are obtainable by the Wilfarth and Gunning methods (cf. Beger, Fingerling and Morgen³).

Copper sulphate acts similarly to mercury and potassium sulphate, and is now quite generally used. Potassium permanganate, added after the acid becomes clear, seems to render certain the oxidation of the last traces of nitrogen. The length of time for heating the acid and the manner of adding the permanganate have been shown to be important. (Sørensen and Pedersen³). The acid may become perfectly clear before all of the nitrogen is changed into ammonia. A safe rule is to heat the acid at least three hours; the permanganate should then be added in small quantities and the acid should not be reheated.

At Professor J. J. R. Macleod's suggestion I carried out some experiments with the Kjeldahl method which are herewith reported.

Controls or blanks of the reagents alone were put through the process to determine what correction must be made for the nitrogen present in the chemicals used. The average of the determinations was equivalent to 0.26 c.c. of a decinormal ammonia solution. A 1% solution of urea was used for the estimation of nitrogen, 10 c.c. of which should, by calculation, furnish 33.33 c.c. of decinormal ammonia. By the Gunning method 10 c.c. gave 32.9 and 33.15 c.c., an average of 33.02 c.c. of decinormal ammonia. By the method to be described below the findings were 32.8, 33.2 and 33.25 c.c., an average of 33.08 c.c. of decinormal ammonia. These figures express the results after all corrections were made. There is always a slight deficiency in the nitrogen estimation by this method.

The formation of mercurammonium sulphate by the Gunning method was investigated as follows. Equal quantities of an albumen solution were taken for the estimation of nitrogen. The solution in which copper sulphate was used produced 2.6 c.c., and the one in which mercury and potassium sulphid were used produced 2.5 c.c. of decinormal ammonia; another estimation made with mercury, but without potassium sulphid, produced 2.2 c.c. of decinormal ammonia, then upon adding the sulphid 0.3 c.c. was liberated making up the total of 2.5 c.c. of decinormal ammonia. Similar results were obtained with a solution of ammonium chlorid.

I shall now describe in detail the method which seems to be the most reliable. Free the room of ammonia. Clean the

Kjeldahl flasks by washing, by boiling strong sulphuric acid in them, and finally by rinsing them out with distilled water. The distilling flasks should be cleaned by distilling in them a dilute alkali, for a time, this will wash out the condenser tube also. The nitrogen in the reagents should be estimated by blanks and this correction must be deducted from subsequent findings.

Take 5 c.c. of urine with an accurate pipette and run it into a Kjeldahl flask; add 1 c.c. of c.p. sulphuric acid, place the flask on an asbestos pad having a small oval hole, the flask fitting the hole accurately, and interpose a piece of wire gauze between the flask and the flame. Incline the flask and rest its neck on a support, and heat with a small flame, evaporating the fluid to a small bulk. Then add 0.5 grams of copper sulphate, 3 grams of potassium sulphate and 9 c.c. of c.p. sulphuric acid. The flask should be heated gradually until white fumes appear, keeping it at this temperature without actual boiling for three hours, or until the color of the acid becomes a clear green. Then take the flask off the stand and add very small quantities of dry powdered potassium permanganate, shaking after each addition, until the acid becomes of a dirty green or pink color. Replace the flask on the hot stand but remove the flame, allowing the acid to cool slowly. When cool add distilled water, as nearly ammonia-free as possible, and shake until the crystalline material is dissolved, then empty the contents into a distilling flask. The Kjeldahl flask should be rinsed several times, emptying the wash-water also into the same distilling flask, then place the flask in position for distillation on a sand bath. Now put into the flask some granular zinc or powdered pumice, and, last of all, run in from a large pipette enough 30-60% sodium hydroxid solution to a little more than neutralize the acid, allowing it to flow down the wall of the flask so that the stream of alkali spreads out as a bottom layer under the acid solution. The amount of alkali necessary is to be determined by titration with 10 c.c. of sulphuric acid. Now cork the flask quickly, connecting it up at the same time with the condenser. Shake the flask, and if the contents are alkaline it will be indicated by the greenish-white precipitate of copper hydroxid.—A special bulb is used to prevent the alkali from splashing up into the condenser tube.—In the meantime, before the alkali was added, a receiving flask containing 10-50 c.c. of decinormal sulphuric acid has been placed in position with the beveled tip of the condenser tube just touching the surface of the acid. Distillation is continued at least one hour. The

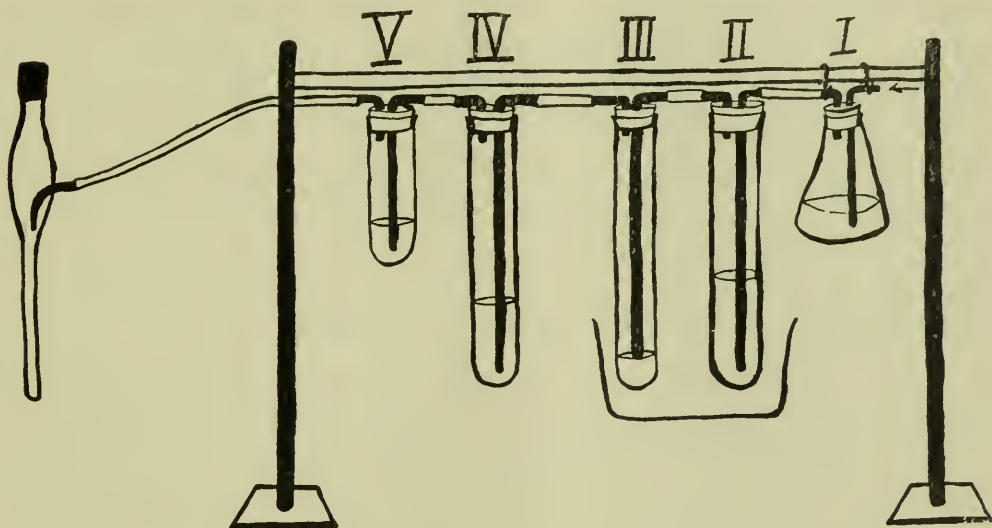
receiving flask is lowered as often as is necessary to prevent the condenser-tip from becoming submerged. I have found that there is no loss of ammonia by this method of catching the distillate. Wilfarth's receiving bulbs might be used but they are easily broken. If the open flask is used it is well to expose a similar flask containing acid as a control and deduct its ammonia absorption from the estimation.

The distillation is continued until the drops of distillate on the washed tip do not give an alkaline reaction. I have found, however, that small amounts of ammonia may be obtained after the distillate ceases to affect litmus; in order, therefore, to insure certainty wash off the tip, remove it from the flask, and catch the distillate in a beaker containing 0.1 c.c. of a decinormal acid solution. If this does not become neutralized in five or ten minutes the process is completed. We then titrate the combined distillates with decinormal sodium hydroxid. Deducting the number of cubic centimeters of alkali necessary to neutralize the combined distillates from the number of cubic centimeters of acid taken gives the number of cubic centimeters of decinormal ammonia distilled over; this multiplied by 0.0014 gives the amount of nitrogen, in grams, in the 5 c.c. of urine.

The ammonium compounds contain 3.5% to 6% of the total nitrogen present in the urine. Of the important methods for estimating the ammonia compounds, Schlösing's⁶ is the oldest one that deserves consideration. A dish containing 25 c.c. of urine, to which phenol has been added, and another dish containing a decinormal acid solution are placed under a bell jar. Before placing the bell jar in position 10 c.c. of milk of lime is added to the urine. The edge of the bell jar is thickly greased and fits tightly onto a glass plate. After from three to eight days all the ammonia has escaped from the urine and has been taken out of the air by the acid. The acid is then titrated and the ammonia is calculated by multiplying the number of cubic centimeters of acid neutralized by ammonia by 0.0017.

To overcome the objectionable feature of the long time required, various methods of vacuum distillation have been invented. The original of these was Wurster's⁷, this was modified by Nencki and Zaleski⁸, by Söldner⁹, and most recently by Krüger and Reich¹⁰. The troublesome foaming of the urine is best overcome by Krüger and Reich's method, by the addition of alcohol. By all these methods the ammonia is liberated by barium or calcium hydroxid and is caught in a decinormal acid solution. The apparatus required is complicated.

A simple method has been recently brought out by Folin¹¹. The necessary apparatus is shown in the accompanying diagram. The air-stream is sucked through the apparatus with a suction pump attached to a tap, the incoming air being freed of ammonia by the acid in flask No. I, flask No. II (I use a 100 c.c.



graduate) containing 25 c.c. of urine, 5 c.c. of petroleum, 10 grams of sodium chlorid and 1 gram of sodium carbonate. The flask designated No. III is inserted to catch any foaming over from the flask marked II, and contains a little strong alkali. The flasks marked II and III are kept in a water bath at about 25° C. The carbonate releases the ammonia from its compounds, and the air-stream bubbling through carries it along to the flask No. IV, where a decinormal acid solution catches it up; flask No. V contains a little decinormal acid to catch any ammonia that may have escaped the previous flask of acid. The apparatus is run for three hours, the decinormal acid is then titrated and the ammonia calculated as already described. The results are quite accurate. Ten cubic centimeters of an ammonium sulphate solution, which gave 19.73-19.78 c.c. of decinormal ammonia when distilled with an alkali, gave in the Folin apparatus 19.53-19.63 c.c. in several estimations. The salt and sodium carbonate should be tested for ammonia as blanks. This method can be easily carried out by the clinician, and can be unreservedly recommended.

It must be noted that carbamic acid, if present in the urine, is split up by the alkali, giving off ammonia. In this case the ammonia estimation will not represent simply preformed ammonium compounds. Carbamic acid may be present when the functions of the liver are seriously deranged.

The problem in all the methods for the estimation of urea is to exclude all nitrogenous substances from the estimation except urea. No method, however, absolutely excludes all extractive nitrogen. To show the degree of error possible with the various methods, a table of nitrogenous constituents of the urine follows:

	24 hours quantity.	Nitrogen, in percent of total nitrogen.	
Urea	20 to 45 grams.	82%	to 90%
Ammonia	0.75 grams (average)	3.5%	to 6%
Extractive substances			
Uric acid	0.2 to 1.25 grams.	1%	to 2%
Purin bases	0.044 to 0.111 grams.	0.1%	to 0.5%
Kreatinin	0.6 to 1.3 grams.	3%	
Oxyproteic acid	0.9 grams.	2%	
Allantoin			
Kreatin			
Hippuric acid	0.1 to 1 gram.	0.5%	

} Average 2%

} 2% to 3%

The hypobromite or Hüfner's¹² method is so familiar as to require no description. Only 94% to 96% of the nitrogen of the urea is liberated by the hypobromite method and, furthermore, repeated estimations with the same urine do not give constant results. Nitrogen is liberated from other urinary constituents than urea by the hypobromite method in the following proportions: ammonia gives up 95% of its nitrogen, uric acid 47.8%, kreatin 66%, kreatinin 37.4% to 60%, oxyproteic acid 20%, allantoin 25% to 50% of their nitrogen content; albumin also yields up some nitrogen¹³ by this method. With a normal urine, the nitrogen set free from ammonia and extractive substances would a little more than make up for the deficit from urea, but when the amount of ammonia or extractives is increased the urea estimation will be quite inaccurate. Mörner¹³ found that in a case of cirrhosis of the liver the urine containing extractive nitrogen equal to 18% of the total nitrogen, gave an over-estimation of urea amounting to 15%, and in a case of phosphorus poisoning, when the extractive nitrogen was 57% of the total nitrogen, the urea estimation was 97% too high.

The only case in which the estimation can be considered of any clinical value is when it is abnormally low, for nitrogen excretion must then be very deficient. It must be remembered that the actual urea content may be abnormally low without there being any indication of it in the hypobromite estimation. The method really makes a partial estimation of the total nitrogen.

Another method which has been extensively used is Liebig's. This is entirely given up now on account of its inaccuracy. W. O. Moor¹⁴ has recently proposed a modified Liebig's method. He titrates an amyl-ethyl alcohol extract of urine with an

alcoholic mercuric bichlorid solution. His estimations are very low. He claims to have discovered a new substance, ureine, which has previously been estimated as urea, thus making the urea estimation about twice the true urea content. His method eliminates ureine. I have been able to prove to my own satisfaction that ureine is mainly urochrome¹⁵. Schultz¹⁶ and Folin¹⁷ have also pointed out the probable sources of error in Moor's method. Furthermore, Erben¹⁸ was able to extract urea crystals free of all other nitrogenous material. The Kjeldahl-nitrogen determination from these crystals indicated 1.35 grams of urea in 100 c.c. of urine, whereas by Moor's method the finding was only 1.12 grams.

The Bunsen method can be used only by an expert chemist; kreatinin, hippuric acid, and allantoin increase the estimation, rendering it inaccurate.

Freund and Töpfer¹⁹ have recently published a method by which the urea is precipitated as urea oxalate, then the oxalic acid in the urea oxalate is estimated and the amount of urea is calculated, and finally the nitrogen of the urea is determined by the Kjeldahl method. The oxalic acid estimation and the nitrogen estimation should indicate approximately the same amount of urea. As a matter of fact they do not, on account of errors inherent in the process²⁰. Practically all of the kreatinin is precipitated, and increases the estimation. The method is too inaccurate to merit its adoption.

The methods which are regarded by physiological chemists as approximating accuracy deserve careful consideration. The Schöndorff-Pflüger²¹ method aims to eliminate all extractive nitrogenous substances by precipitation with phosphotungstic acid. The filtrate is heated with phosphoric acid for three hours at at least 150° C. The nitrogen of the urea is changed to ammonia and the acid mixture is distilled with an alkali as by the Kjeldahl method. The amount of nitrogen calculated from the ammonia is multiplied by 2.143 to give the amount of urea. Oxyproteic acid, kreatin, allantoin, hippuric and amido acids are not precipitated²². Kreatin would be present only in an alkaline urine, and it could be changed to kreatinin by heating the urine with acetic acid; then the kreatinin would be precipitated²¹. It is claimed that hippuric and amido acids could not introduce any error because their nitrogen is not converted to ammonia by the phosphoric acid²¹. Allantoin exists normally in the human urine only in traces, except during the first week of infancy and at times during pregnancy. As an abnormal constituent it has

been found in a case of diabetes insipidus, and in a case of convulsive hysteria²³. It may, therefore, occasionally cause an error. In all urines oxyproteic acid introduces an error into the urea estimation.

There are some practical drawbacks with this method. It may be difficult to secure a suitable sample of phosphotungstic acid. It must be free of nitric acid, it must not precipitate urea (some samples do, however.) and it must precipitate ammonia completely (some samples fail to do so). An excess of the acid must not be used because there is danger of the precipitate re-dissolving. The urine should contain between 1% and 2% of urea and if the specific gravity indicates a probably higher percentage it must be diluted; if it indicates a lower percentage it would be well to concentrate the urine on a water bath at about 50° C., taking note of the exact decrease in volume.

Mörner²² has shown that in the presence of sugar there is a considerable deficiency in the urea estimation: for instance, after adding 5% of glucose to the urine only 54% of the urea was estimated. The sugar when heated with acid locks up part of the nitrogen in a humin compound which does not give off ammonia when heated with an alkali. Mörner²² also found that the phosphotungstic acid failed to precipitate most of the extractive nitrogenous substances in the urine from a case of phosphorus poisoning.

A method which could be followed more easily by the clinician is that of Mörner and Sjöquist²⁴. Like the preceding method this one requires 24 to 36 hours to carry through. A description of the method can be found in many of the newer books on physiological chemistry. Briefly, the urine is precipitated with a barium mixture and a mixture of ether and alcohol, ammonia is driven off by heating with magnesia, and the nitrogen is estimated by the Kjeldahl method. The amount of nitrogen multiplied by 2.143 gives the amount of urea in the 5 c.c. of urine taken for the estimation.

Oxyproteic acid, uric acid and purin bases, some of the coloring matter, proteids—albumin, globulin, albumose and peptone—and amido acids are eliminated²⁵. Kreatinin, hippuric acid, 17% to 25% of the allantoin and part of the urochrome are not removed and therefore increase the urea estimation. Kreatinin is the only one of these which could ordinarily cause an appreciable error. This method has the advantage over most methods in that the presence of sugar causes no great error²⁶. There is a slight deficiency when more than 5% of sugar is

present, in that case the urine might well be diluted before adding the reagents. Instead of barium mixture, $1\frac{1}{2}$ to 2 grams of powdered barium hydroxid are used with diabetic urines.

Folin's²⁷ is one of the newest methods. The nitrogen of the urea is changed to ammonia by heating urine with magnesium chlorid at a high temperature in the presence of hydrochloric acid, then the ammonia is distilled off with an alkali as by the Kjeldahl method. The ammonia existing preformed in the urine must be separately estimated and its nitrogen must be deducted from the nitrogen of the ammonia distillate. The urea is calculated from the nitrogen as by the previous methods. Allantoin and kreatin, if present, increase the urea estimation, and the presence of sugar makes the estimation very inaccurate²⁸. The time of heating the magnesium chlorid mixture must be just about two hours. The distillation with alkali must be prolonged. The reagents must be tested for ammonia.

Mörner has set both his own and Folin's methods to one side in favor of a combination of the two. This Mörner-Folin²⁹ method consists in following Mörner's method up to the point where the Kjeldahl process would begin, then the magnesia-urine mixture is transferred to the Folin flask with the aid of hydrochloric acid and the complete Folin method is carried out. Like the Mörner-Sjöquist method this gives almost accurate results with diabetic urine. Kreatinin, hippuric acid and allantoin, which are not eliminated by the treatment with barium and alcohol-ether mixtures, give up very little of their nitrogen as ammonia by the Folin method. Only 0.1% to 2% of the nitrogen of kreatinin, 0.4% of that of hippuric acid, and 4.8% to 7% of that of allantoin enter into the Mörner-Folin estimation. This is undoubtedly the most accurate method known, and should be used for all scientific work.

R. v. Jaksch³⁰ expresses the opinion on the basis of his assistant Erben's findings, that the Mörner-Folin method gives results the closest to the true urea content.

Unfortunately we have still to wait for a short and simple method which shall also be reasonably accurate.

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The Surgical Treatment of Paralytic Deformities

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In demonstrating these few typical cases tonight, I intend merely to illustrate the principles which have guided my work on tendon transplantation in the past few years, and reserve for a more formal paper the complete list of my cases and a thorough discussion of the subject:

Case I: Sidney H., aged four, was referred to me by Dr Moore. In June, 1903, the patient had a fever which lasted for two days and two nights, followed by a paralysis of the entire left limb. Recovery was gradual, until only the foot is affected. The foot has always turned outward and all attempts at dorsal or plantar flexion resulted in making this eversion still more extreme. Walking is difficult for this reason.

The condition present when the child was seen April 4, 1904, was that of flat-foot due to paralysis of the tibialis anticus and posticus muscles. The foot was strongly everted by contraction of the peronei. Active inversion and supination was impossible. There was typical flat-foot on standing. (Fig. I.) Dorsal and plantar flexion took place with the foot everted. On April 8, by

means of a longitudinal incision in front of the ankle, the tendon of the extensor proprius hallucis was inserted into the tendon of the tibialis anticus.

Silk sutures were used; the skin was closed with chromic catgut and the foot was held in an over-corrected position by a plaster cast. Stitch abscesses formed. The second cast was removed after six weeks; a light brace

was applied. The after-treatment consisted of active exercise, massage, electricity, and rest.

At present the foot is held in the normal plane, and no longer turns outward on dorsal flexion. (Fig. II.) The patient can actively invert the foot when he attempts to extend the foot or big toe. The loss of the tibialis posticus is still noticeable, but the cosmetic and functional result is good and the extensor hallucis muscle and tendon have hypertrophied and are well able to take the place of the tibialis anticus.

Case II: Grace P., three years of age, was referred by Dr Kofron. Paralytic flat-foot. The patient had infantile paralysis at the age of nine months. The entire right limb was paralyzed. Recovery was gradual until only eversion of the foot remained. The foot turns outward on standing until the child seems to walk on her internal malleolus.

The foot presented, when seen July 5, 1904, a most severe grade of paralytic pes valgus. (Fig. III.) The tibialis anticus and posticus muscles are paralyzed as are the tendons of the extensor longus digitorum supplying the second and third toes. The peronei are much contracted and the foot is always held in an everted position. Active inversion and supination are impossible as is also extension of the second and third toes.

The operation, performed July 7, 1904, consisted of cutting through the peroneus brevis, at the base of the fifth metatarsal,

and bringing it around under the tendo achillis and inserting it into the periosteum of the scaphoid. The tendon of the extensor proprius hallucis was next introduced into the tendon of the tibialis anticus. The outer two tendons of the extensor longus digitorum were cut and the ends united to the inner two



Fig. I

Fig. II



Fig. III

Fig. IV

tendons in such a manner that all the toes were supplied, but so

that the tendons of the inner two should bear the power. The plaster cast, applied with the foot in an over-corrected position, was not disturbed for eight weeks. The after-treatment was massage, exercise, baths and rest.

Active extension is now weak but otherwise normal. The foot is no longer everted, but is held slightly inverted. (Fig. IV.) Extension is possible in all the toes. The patient can actively pronate, supinate, invert and extend the foot and, on standing, no flat-foot is noticeable. The only abnormality now presented by the foot is a weakness in extension which we hope to overcome by after-treatment. The reason this result is more perfect than that in the previous case is due to the fact that I used one of the peronei muscles to substitute for the tibialis posticus.

Case III: Annie C., aged 16, was shown by me at one of the sectional meetings eight months ago. She was operated upon for a paralytic flat-foot resulting from paralysis of the tibialis anticus and posticus muscles of such a severe grade as to compel her to wear a brace on that foot in order to be able to walk. I transplanted the extensor hallucis to the tibialis anticus with such success that she does not need to use the brace. The patient can actively invert her foot when she extends it, and from the size of the tendon resulting from the transplantation, one might easily mistake the hypertrophied extensor hallucis for the tendon of the tibialis anticus. The patient was faithful in carrying out the after-treatment. She has recently allowed extensive operations on the other limb which is also paralyzed.

Case IV: Henry P., aged 10, was referred to me by Dr Lueke, with paralytic club-foot. The patient suffered from infantile paralysis at the age of three. After recovery he walked



Fig. VI

Fig. V

with a limp and on the outer side of the right foot which gradually turned under more and more. He was unable to bend the foot upward or outward. When seen September, 1903, there was found to be a paralysis of both peronei and of the extensor longus digitorum. There are contractions in the tendo achillis, tibialis anticus and extensor

proprius hallucis. The plantar fascia and flexor hallucis are also quite contracted giving a very rigid and hollow foot in the exaggerated club-foot position, pes equino-varus. (Fig. V.)

At the operation, May 17, 1904, forcible correction by means of the Thomas wrench was accomplished; the plantar fascia was over-stretched and torn; the tendo achillis lengthened two and one-half inches, and one-third of its fibers were inserted into the tendons of both peronei. The tendon of the tibialis anticus was lengthened and one-half of it was inserted into the extensor longus

digitorum. The extensor hallucis was cut off at the last phalanx and inserted into the periosteum of the cuboid. A plaster cast was then applied in an over-corrected position for eight weeks. The after-treatment and rest were neglected, and the patient runs about more than ever.

At present the foot is held over-corrected in the valgus position. The patient can actively pronate and evert the foot, and can extend the toes, and the power of dorsal flexion has returned. The foot has lost its hollow shape and the patient walks flat upon the sole. (Fig. VI.)

Case V: E. V., aged five, referred by Dr Albl, presented a paralytic club-foot. The patient suffered from infantile paralysis at 13 months; the muscle power has slowly returned to the left leg until she can now walk, but the foot is turned inward and under, so that she walks and stands on the dorsum of the foot (Fig. VII). There is a large hard callus on the extreme outer margin of the foot which causes her pain. She wears a brace which—*mirabile dictu*—pulls the foot still further in the varus position.

On May 9, 1904, there was a paralytic pes equino-varus of extreme degree. The patient had no power to straighten the foot and was unable to stand upon the sole. A large callus on the dorsum represents what was actually used as the "sole" of the foot. The peronei and extensor longus digitorum muscles were paralyzed and there was marked contraction of the tibialis anticus, extensor hallucis and tendo achillis. On May 4, 1904, forcible correction was performed over a wedge. The tendo achillis was lengthened and one-half of it implanted into the peronei tendons. The tibialis anticus was also lengthened and one-half of its fibers were ingrafted into the extensor longus digitorum; the extensor hallucis was divided and implanted into the periosteum of the base of the fifth metatarsal bone. A plaster cast was applied in over-correction for eight weeks; following this a light brace was used. The after-treatment and rest were not carried out.



Fig. VII

Fig. VIII

As noted August 1, 1904, the patient stands on the sole of the foot which is now perfectly straight (Fig. VIII), the callus has disappeared, and the foot can be actively everted and pronated. The graft from the tendo achillis can be seen to actuate the peronei when the patient attempts to flex the foot. The patient does not receive proper care, and refuses to wear the brace. On August 12, she fell from an 11-foot fence and tore out the new insertion of the extensor hallucis. This was immediately sewed to the periosteum of the fifth metatarsal and on September 10 the foot was again in good position.

Case VI: Arthur H., aged 13, had infantile paralysis at the age of four months, the entire right side being affected. Recovery was gradual until all that remains is a hollow, inverted, supinated, horseshoe foot.



Fig. IX

When seen, July 6, 1904, there was a paralytic club-foot and the patient walked on the outer edge of the sole. There was atrophy of the right leg and paralysis of both peronei, besides a marked contracture of the flexor hallucis and plantar fascia, giving a hollow and rigid inverted foot. On July 6, after dividing the plantar fascia and flexor hallucis, the Thomas wrench was used in *redressment*. The tendo achillis was lengthened and one-third of it inserted into the peronei. A plaster cast was used in an over-corrected position for eight weeks.

The foot can now be actively everted, is held straight, has lost its hollow appearance, and the patient walks squarely on the sole (Fig. IX.) Exercise and massage were used in after-treatment, and the shoe was raised on the outside.

Case VII: Florence M., aged seven, was referred by Dr Lueke, suffering from Volkman's ischaemic paralysis. In July, 1902, the patient sustained a fractured elbow which was at once placed in splints. Twelve hours after, the fingers were blue and cold. The next day it was noticed that the wrist and fingers were bent. On the third day, when the dressings were removed, the hands and fingers were firmly locked in a flexed position, and a large blister was noticed over the belly of the supinator longus. Since this time the fingers, wrist and forearm have wasted and the muscles have become converted into hard fibrous masses.

In July, 1903, the following conditions were present: The elbow was ankylosed at less than a right angle without excessive callus; there were scars on the anterior and posterior surface of the forearm; the fingers, with the exception of the last phalanges of the index finger, were flexed and contracted; the wrist was also flexed and firmly held in this position by contracture of flexor tendons (Fig. X.) The hand was cold, clammy and edematous; there was slight active flexion in the fingers but none in the wrist; no extension was possible; further flexion of the hand demonstrated an over-stretched condition of the extensors. The hand tended always to return to its original contracted position. There were no areas of anesthesia. Exercise, baths, massage and electricity were employed for one year without improvement.

On June 28, 1904, dissection demonstrated that the musculospiral nerve was normal to a point beyond the origin of the radial. The tendon of the biceps was then divided. At the wrist we divided the annular ligament and lengthened all the flexor tendons as much as possible. Owing to their small size and friability some of them had to be pieced together in order to lengthen them. The palmaris longus, flexor carpi radialis and flexor carpi ulnaris

were divided. A piece one and one-half inches long was cut out of the tendons of the extensor communis digitorum and an attempt was made to shorten the tendons by suturing the cut ends together. The silk, however, cut through and apposition was impossible. The gap had, therefore, to be bridged over by a loop of No. 3 silk.

The cut end of the palmaris longus was inserted into the distal part of the tendon of the extensor communis digitorum by means of a long strand of No. 4 silk. The hand was dressed in an over-corrected position on a splint bent backward about 30°. Such extensive mutilation did not promise favorable results, especially



Fig. X

Fig. XI

was the failure of the extensors to unite to be deplored, but we were agreeably surprised to find union *per primam* and the hand could be over-extended by means of leather cuffs to about 45°, at which angle she can actively, though slightly, extend and flex the fingers. She can now, unassisted, hold her wrist and fingers in a nearly horizontal position. The hand is no longer cold, clammy and cyanotic, and is gaining in strength daily. (Fig. XI.)

The above operative measures, in common with the rest of my work, were carried on at Mt. Sinai Hospital with the assistance of Drs Lueke and M. Metzenbaum. Silk was used throughout for the tendon sutures and artificial tendons and silkworm gut for the skin. Except for the chromic gut, used in Case I, there have been no stitch abscesses and no suppuration in any case. The cases here reported are not yet to be regarded as permanent cures. They are in truth cures, and to all appearances useful ones, but the test of time is needed before they can be proclaimed as absolutely permanent results.

Some Observations on Hemoptysis

BY GUY H. FITZGERALD, A. M., M. D., ALBUQUERQUE, N. M.

Control of blood-pressure is the one great essential in the treatment of hemoptysis. Blood-pressure varies within certain physiologic limits and many seemingly trivial means may be quite useful in keeping it low, or in avoiding sudden increases. For instance any physical exertion, the presence of much food in the stomach, a sudden high fever, severe pain, anxiety, fear or mental excitement, all contribute to a pressure higher than normal. The vasomotor mechanism is so responsive to a great variety of impressions that blood-pressure readings by mechanical

means are at best but approximate; however, careful repeated observations will give fairly accurate records. Records made by a Riva-Rocci sphygmomanometer form the basis of the observations cited in this paper.

That altitude is not a causative factor of any moment in producing pulmonary hemorrhage is evident from observations made on both sick and healthy people on arrival at an elevation of 5,000 feet. The readings show the blood-pressure lower than that of old residents of the same age and sex, and lower than the point to which it rose after some weeks residence. Many cases of hemoptysis occur at this altitude, but the proportion of hemorrhages to the number of cases is no greater here than elsewhere. On going from a low to a high altitude the atmospheric pressure on the general body surface is lessened, and general blood-pressure falls in proportion. Nearly all persons on reaching a high altitude experience some slight disturbance. The pulse-rate is usually increased and blood-pressure lowered. The dizziness, shortness of breath, headache and nausea often experienced, are partly due to disturbance of the factors which maintain blood-pressure. In the great majority of cases the heart and vasomotor system promptly meet the demand for more work and compensation is soon established, after which blood-pressure again reaches the normal level.

Observations on blood-pressure made before, during and after hemorrhage usually showed a decline from the normal pressure during and after the bleeding. Only in nervous, excited or fearful subjects did the pressure remain high, or rise to a higher point than was observed before the hemorrhage. Four patients who registered a practically normal pressure for some weeks preceding a hemorrhage, during and immediately after the bleeding showed a decided fall in pressure, though the loss of blood in no instance was great. None of these patients were of a nervous temperament. Two nervous patients, who previously registered normal pressures, 145 and 155 mm., on having hemorrhages showed erratic variations in pressure, which ranged from 125 to 190 mm. For a week following there were occasional hemorrhages which occurred when the pressures were highest. Both cases were extremely excitable, and fearful of death. These variations in pressure were most probably of psychic origin, since other factors could be largely excluded.

The psychic effect of hemoptysis on blood-pressure varies with the patient's temperament. The more usual course is for blood-pressure to fall owing to the depression which such an acci-

dent causes, even in the phlegmatic. Nature thus lowers blood-pressure and favors thrombosis. This decline in pressure is noted even when the loss of blood is small. A hard, rapid, high-tension pulse with high blood-pressure is found in the nervous, excited or hysterical subject, and in these cases the control of blood-pressure is often difficult. Reassurance by the physician, and confidence inspired by his manner and work, may be of the greatest value in allaying excitement and fear, and thus materially aid in lowering blood-pressure. Nerve sedatives, as bromides, in large doses, are often more effective in lowering blood-pressure in these subjects than the direct circulatory depressants. When the blood-pressure continues high during a hemorrhage, the cause is usually psychic and suggestion and nerve sedatives will give the best results. Often in cases where the nervous element is least suspected, it remains a concealed cause of high pressure. A patient may give every assurance that he is not worried or anxious, and may seemingly be fully reassured by the advice and counsel of his physician, and yet underneath it all his secret anxiety may do more harm than that of the patient who is open and frank about it. Too much stress cannot be laid on the patient's mental make-up, and in gaining his fullest confidence. No accident causes greater anxiety and fear than hemoptysis even in the carefree and phlegmatic. It is regarded as a most dangerous sign and causes more mental distress than any other symptom in phthisis. Hence the wisdom of preparing patients beforehand for this complication by careful explanation of what a hemorrhage means and that it is not usually serious. A patient so prepared is able to face a hemorrhage with a calmness and quiet which aids greatly in lessening its severity.

Theoretically the nitrites—such as amylnitrite, or nitroglycerin—by lowering general blood-pressure should indirectly lower the pulmonic pressure and thus favor clotting. According to Sollman, vasomotor drugs have little or no direct effect on the pulmonic blood-pressure. In practice these drugs seem to give little result in the control of pulmonary hemorrhages, even when the effect is pushed. This is particularly true of nervous subjects in whom the blood-pressure varies greatly. If the loss of blood has been great, full doses of the nitrites may produce an alarming collapse which it is hard to overcome.

The treatment of hemoptysis will vary with the type of bleeding. If an area of congestion or hyperemia is causing slight bleeding, if the sputum is but tinged with blood, or if there are but a few mouthfuls of bright frothy blood, rest in bed may be all that

is required in addition to careful directions about exertion for some weeks to come. Bleeding of this type usually subsides within a short time. If the hemorrhage is more severe, or if a vessel has ruptured, a hypodermic of morphia and atropia is best given at once. The danger of having blood pass into other portions of the lungs, owing to lessened sensitiveness of the bronchial tubes, is not very great. These patients often take large doses of morphia without subsequent ill effects. The one great essential is to do everything possible to favor thrombosis. Absolute physical rest and mental quiet are imperative if a low blood-pressure is to be favored. Morphia aids greatly in producing physical rest and no one drug is so effective in allaying mental excitement. The patient is best placed in a semirecumbent position, in which he can expectorate with the least effort; he should not speak above a whisper, and should make no movements which are not absolutely necessary. As physical effort raises blood-pressure, cough should be controlled at all hazards. Codeia or morphia are most effective. The sudden mechanical distension of the lung in the act of coughing may readily dislodge a newly formed clot; or the additional increase in blood-pressure, caused by the physical effort of coughing, may force out a thrombus and renew the bleeding. A hard coughing fit may cause a rise from 90 to 100 mm. in blood-pressure. No physical examination, especially percussion or deep breathing, should be allowed as nothing of benefit can be gained thereby. Since solid food or large amounts of liquid food in the stomach will cause a rise in blood-pressure, nourishment is best given in small amounts and in liquid form so long as there is any sign of bleeding. If high, blood-pressure should be lowered, and if the bleeding is not very severe, a saline laxative may aid greatly; if the bleeding is severe, it should be withheld, since the efforts in bowel movement may raise blood-pressure. Morphia will indirectly help in lowering blood-pressure by its mental as well as physical action. The patient's fears should be allayed if possible. Ice-bags over the heart, if its action is tumultuous, may do good. Common salt and small pieces of cracked ice by mouth are beneficial in the way of suggestion at least. When acute pleurisy complicates hemorrhage the bleeding is often intractable; sudden sharp pain almost invariably raises blood-pressure, and the pleurisy may be painful enough to keep the pressure high. In addition to morphia, strapping may be necessary if the pleurisy and bleeding points are not on opposite sides. A high fever, or even a sudden rise of a degree or two in temperature, usually causes a rise in blood-pressure, and hence

if fever is present it should be controlled. Antipyretics may be needed to lower the fever and indirectly the blood-pressure. Bromides and nerve sedatives are of great value in the nervous. If blood-pressure continues high, in spite of these measures, some of the circulatory depressants, as veratrum or aconite, may be used. However, they are not so efficient in lowering blood-pressure in the excited or hysterical subject unless pushed to almost the toxic stage. Amylnitrite or nitroglycerin give better results with less danger. Over drugging is common in the treatment of hemoptysis, and especially is this true in the use of circulatory depressants, when blood-pressure is already sufficiently low. They are best held in reserve until other and less severe measures fail.

Ergot has no value in pulmonary hemorrhages, either theoretically or practically. Observations made on patients taking large doses invariably showed a rise in blood-pressure with no lessening of the bleeding. Heroic doses, taken on their own volition for twenty-four and thirty-six hours by two patients, resulted in a blood-pressure of 210 mm. in one case and 185 mm. in the other, with a constant increase in the bleeding. The one subject was of a nervous temperament, which may have contributed to the high pressure; but the other was phlegmatic and not at all excitable. In no instance in a large series of cases could the control of hemorrhage be attributed to ergot. Adrenalin by mouth taken in small repeated doses, or in large single doses, failed to control bleeding. Its effect on blood-pressure in these cases was not marked, though as a rule there was a slow gradual rise in pressure. When given in heroic doses in desperate cases, the results were not satisfactory. Too much dependence is often placed on ergot or adrenalin as specifics in directly controlling hemorrhages. Neither drug has much effect on pulmonary hemorrhage, and certainly the rise in general blood-pressure following their use will tend to increase the bleeding.

Gelatin or calcium-chlorid given in cases which were subject to frequent small oozings, rather than to large hemorrhages, failed to materially check the bleeding. In severe cases, where immediate results were demanded, their action was too slow. In cases where the drugs could be given for some time, rather as a prophylactic than for the immediate control of bleeding, no great benefit could be noted. Neither drug is objectionable since they have no action on blood-pressure. In the same category fall gallic and tannic acids, hydrastis, alum, dilute sulphuric acid, and other drugs given with the idea of increasing the coagula-

bility of the blood. Digitalis is dangerous because it causes a decided rise in blood-pressure.

When the hemorrhage has been profuse, and the patient is exsanguinated, normal saline solution by hypodermoclysis may be indicated. It must be given with caution since blood-pressure may be raised to a dangerous level. Small amounts, repeated as required, are safer than one large injection. That the pulse is soft and the blood-pressure is low is beneficial rather than otherwise, since the greatest danger lies in a too high rather than a too low blood-pressure.

The best treatment of hemoptysis requires: (1) absolute physical rest; (2) mental quiet and relief from fear and anxiety; (3) morphin and atropia in sufficient dosage to insure both the preceding; (4) control of cough, fever and pleuritic pain and careful attention to diet; (5) suggestive measures as ice caps over the heart, salt and cracked ice by mouth, etc.; (6) free use of bromides and nerve sedatives in the nervous; (7) nitrites or veratrum when high blood-pressure persists; (8) care in not over drugging or in placing reliance on specifics as ergot or adrenalin; (9) hypodermoclysis with normal saline when indicated.

Notes on Refraction and Eye-Strain, in the Case of 206 Second Grade School Children

BY LEIGH K. BAKER, M. D., CLEVELAND

Two hundred and six pupils, 92 girls and 114 boys, were selected from 12 different schools, the average age being a trifle over eight years. Care was taken to select typical specimens, those nearest the windows being examined, and no pupils were taken from rooms which were not well-lighted. The children were examined by rows, from front to rear, just as they were seated, without reference to previous letter-tests by the teachers, and the examinations were made with the ophthalmoscope, in darkened offices or dark halls. In examining each eye, the following steps were taken.

The pupil's accommodation was relaxed and the shadow-test applied, after which the movement of the retinal vessels, in both horizontal and vertical planes, was noted. The general condition of the fundus was then observed and the refraction reading of the ophthalmoscope was recorded. Anomalies of refraction, cataract, and a number of other unusual cases were excluded. The following results were noted.

Qualitative refraction showed 153 cases, or 74%, in which

hyperopia was the prominent refraction feature; 46 cases, or 22.3%, in which astigmatism was the prominent refraction feature; five cases in which myopia was the prominent refraction feature and two cases in which emmetropia was present. Quantitative refraction showed 55 cases, or 26.7%, with more than one diopter of hyperopic astigmatism; 144 cases, or 69.8%, with one, or less than one, diopter of hyperopia or hyperopic astigmatism; five cases with one or more diopters of myopic astigmatism, and two cases with emmetropia.

The general functional condition was found as follows: 65 cases, or 31.6%, showed marked choroidal disturbance, 76 cases, or 36.8%, showed slight choroidal or retinal disturbance, and 65 cases, or 31.6%, showed a normal condition of the fundus at the close of the year.

During the years 1901-2-3, the reports of the second grade teachers, who followed the directions and made the tests correctly, contained the names of 18,798 pupils. According to the Snellen test, 17.4% of these were defective as to vision, but the ophthalmoscopic examination of the 206 children indicates that this was a low estimate, being 9.3% less than appear to have decided errors of refraction. The comparison would suggest that approximately 10% of those children with hyperopia and marked refraction errors are not detected, at this period of school life, by means of the letter-test.

During these years the teachers found an average of 173 pupils (less than one per cent) wearing glasses, whereas the average number reported defective was 1,089. At the beginning of the third year, but a trifle over one per cent of these pupils came to school with glasses, and reports from the different school districts show that most of the children wearing glasses are included within nine of the 87 school districts.

Taking it for granted that the home and school environment of the future will be similar to that of the present, it seems likely that growing eyes will be materially assisted and conserved through the use of properly fitted and adjusted lenses; that following the fevers of childhood greater care of the eyes must establish thorough convalescence, and that more frequent treatment must restore the neglected cases. Among any group of school children a percentage of 22.3 with noticeable astigmatism, of 26.7 with pronounced errors of refraction, and of 31.6 with marked functional disturbance would suggest that a large number of such children could be benefited through the services of an oculist.

These conclusions are not based upon the examination of 206 second grade children alone, but upon the ophthalmoscopic examination of over 7,000 children during my service of nine years in the schools.

Resolutions of the Gallia County Medical Society

Inasmuch as the management of the Ohio Hospital for Epileptics has been subjected to newspaper persecution misrepresenting the conditions in that institution and reflecting upon the ability of the Superintendent; therefore, be it

RESOLVED: That the Gallia County Medical Society protests against the damaging and unfair methods employed by those who are endeavoring to discredit the present management of the hospital; and that it expresses its confidence in the honesty, integrity, personal uprightness, professional and executive ability of Dr A. P. Ohlmacher, the Superintendent of the Ohio Hospital for Epileptics. And be it

RESOLVED: That the Gallia County Medical Society signifies its disapproval of all forms of political intrigue tending to embarrass the authorities of the Ohio Hospital for Epileptics in the honorable discharge of the duties looking to the best medical and administrative interests of the wards of the State. And be it further

RESOLVED: That a copy of these resolutions be transmitted to Governor Myron T. Herrick, and to the Board of Trustees of the Ohio Hospital for Epileptics.

These resolutions were introduced by Dr Charles G. Parker and adopted at the regular meeting of the Gallia County Medical Society held in Gallipolis, November 1, 1904.

R. W. HOLMES, Secretary.

Resolutions by the Ninth Councilor District Medical Society

WHEREAS: Through the medium of the public press the affairs of one of our prominent State Hospitals have been exploited in such a manner as to reflect discredit on the Institution and its authorities; therefore be it

RESOLVED: That the Ninth Councilor District Medical Society, in convention assembled, in the city of Portsmouth, Ohio, this third day of November, 1904, hereby expresses its satisfaction with the high class of scientific work, and its endorsement of the results accomplished by the present management of the Ohio Hospital for Epileptics, and its belief that the executive head of that Institution merits the hearty support of his medical associates generally, and of this organized body of physicians of which he is a member, the same being hereby tendered. And be it

RESOLVED: That this Society sets its definite disapproval on the intrusion into the medical and benevolent institutions of the State of political methods tending to embarrass the governing bodies and executive heads of these institutions in the discharge of the functions looking to the honest and most effective medical and general administration. And be it further

RESOLVED: That the Secretary be instructed to forward a copy of these resolutions to his Excellency, the Governor of Ohio, Myron T. Herrick, and to the Trustees of the Ohio Hospital for Epileptics.

These resolutions were introduced and a motion for their adoption made by Dr S. B. McKerrihan, of Portsmouth. Motion seconded by Dr S. S. Halderman, of Portsmouth, President of the Ohio State Medical Association, and unanimously carried.

The Ninth Councilor District Medical Society is composed of county societies from the following counties: Scioto, Lawrence, Gallia, Meigs, Vinton, Hocking, Jackson and Pike.

The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and
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EDITORIAL

Etiology of Rheumatism

The question of the etiology of rheumatism, and especially of the acute articular variety, has been under active consideration for many years, and the results of observations have been quite diverse. In addition to the adherents to the various theories dependent on supposed changes in metabolism, the students of the subject are in the main divided into four classes. Some believe that it is due to a specific microorganism, not as yet discovered; some that it is merely a form of mild pyemia, due to any of the pyogenetic cocci; some that it is due to a specific variety of the streptococcus or diplococcus family, and others that it is due to a specific bacillus, the so-called "Bacillus of Achalme." The evidence as to this last theory has never been conclusive, and the adherents of the first theory are daily lessening.

For some years it has been noted by various observers that certain varieties of streptococci when inoculated into animals gave rise to joint symptoms, the organism showing a marked tendency to localization in the synovial membranes. Those who believe that the streptococcus of rheumatism is a specific microorganism base

their belief on this selectivity, and on certain minor cultural characteristics, so that the English observers have gone so far as to name the organism "micrococcus rheumaticus." They admit that if cultures and slides were given without notes they would undoubtedly be classified as ordinary streptococci. One of the chief points urged in favor of this theory is the different reaction of the "micrococcus rheumaticus" when compared with other streptococci by the agglutination test of Marmorek. Aronson, Meyer, and others have done much in the last year or so to discredit the specificity of this test, to the distinct weakening of the chain of proof.

MORE RECENT EXPERIMENTAL WORK

Rufus Cole, working in the laboratories of the Johns Hopkins Hospital, has recently published, in the *Journal of Infectious Diseases* for November 5, 1904, a series of original observations bearing directly on this point which offer strong evidence that the streptococcus causing polyarthritis in rabbits, when inoculated into the circulation, is not a specific one. He made use of six races of streptococci obtained from the most various sources, namely, peritonitis subsequent to carcinoma of the stomach, puerperal fever, blood-culture during life in a case of terminal septicemia following myocarditis, empyema, blood-culture during life in a case of septicemia following appendicitis, and from suppurating glands in a scarlet fever adenitis. Such a diversity in sources precludes the possibility that all these were the so-called "micrococcus rheumaticus." A carefully worked out series of experiments with these cultures showed that they differed only in degree, that is, a different amount of culture was necessary to produce like effects. The dosage found necessary was one insufficient to produce the death of the animal in less than six or seven days from the time of inoculation, and in all the experiments polyarthritis of mild degree was produced. The author accounts for the absence of similar observations by the fact that in most cases of inoculations in laboratory routine the result sought is the death of the animal, and the symptoms in the interval are usually not carefully observed. The inoculated animals remain quiet, and the lameness is only noted when they are made to walk around. The localization in the joints appears to occur early, and the organisms can often be cultivated from these parts before the appearance of any lesions. They are also frequently found in the joints after their disappearance from the other parts of the body. On the other hand, in some cases which die in a few

hours after inoculation, they cannot be found at all in the synovial membranes.

The cultures recovered from the inoculated animals differed among themselves in certain minor characteristics, but in no essential points. Coverslips from the exudates in the joints are very apt to show cocci in pairs, somewhat biscuit-shaped, suggesting that it is a diplococcus, but the cultures show the typical streptococcus.

The author's conclusions are that arthritis and endocarditis may be produced experimentally by the intravenous inoculation of streptococci from various sources, with results similar to those attributed to the "micrococcus rheumaticus," and that accordingly the assumption of a specific streptococcus as a cause of such lesions is unwarranted. Discussion of the closely allied question whether rheumatism is a form of streptococcus septicemia is not taken up in this paper.

As to the etiologic relation of streptococci of any kind to the joint lesions in rheumatism, Cole states that in spite of routine cultures in all cases of rheumatism, grown under a variety of conditions, the results at the Johns Hopkins Hospital have been uniformly negative.

The Perfection of our State Organization

The final stage in the comprehensive scheme for the reorganization of the medical societies of Ohio, which was inaugurated at Toledo, three years ago, is now on. This is seen in the assemblage of the physicians of the county groups constituting a councilor district, in autumnal conventions. The first step in this direction was taken last year by the Ninth Councilor District which met and organized at Jackson, Ohio. The second meeting of this association took place at Portsmouth, November 3, and was a success from every point of view. The Tenth Councilor District Association met in Columbus, November 15, with an attendance of over 100 members, and organized amidst much enthusiasm. A very attractive program was presented at the meeting of the Second Councilor District Association in Dayton, November 17; and meetings are promised for the First and Fifth Districts. Unquestionably the good example of these preliminary meetings will be followed in the other districts, and by another fall we shall witness the pleasing spectacle of a series of district conventions following each other in regular order and representing all told a gathering of 600 to 1000 members of the Ohio medical profession. This,

with the annual meetings of the parent State Association, and the monthly or bi-monthly gathering of the county society, will effect a society movement heretofore undreamed of, and will all be due to the work of that group of devoted pioneers who planned and executed the organization of the medical profession along lines shown to be effective by other confederations. The result is a conquest of medical diplomacy and politics of which we may all be proud, and our obligations to those who effected this result should not be forgotten.

The founders of the new movement in medical organization predicted that, once consummated, the power of the medical profession would make itself felt in the body politic. By a curious coincidence, at the moment that the final stage in Ohio's organization was progressing, a very important issue, that of political interference in the benevolent and medical institutions of the State, presented itself; and, beginning with the utterance of the county society in which the particular institution in question was located, each of the several district associations took cognizance of this matter and adopted resolutions recording the medical profession's protest against political intrusion tending to embarrass or defeat the medical and administrative officers of these institutions in the honorable discharge of their duties. Thus at the very outset of the consummation of our new confederation we, as a body of physicians, have been enabled to speak forcibly and directly to the chief executive of the State upon a matter of vital importance to the medical profession and to the public of the State of Ohio. No better or more timely demonstration of the larger purposes of medical organization could have been planned.

Healed and Quiescent Tuberculosis

In a very interesting article in the September number of the *California State Journal of Medicine*, Blumer and Lartigau publish the results of an analysis of 500 consecutive post-mortems studied with especial reference to healed or quiescent pulmonary tuberculosis.

The figures given and the rational conclusion to be drawn from this paper are worthy of careful consideration. Of the 330 males in the series 94, or 28.4%, showed evidences of healed or quiescent tuberculosis of the lungs, while of the 170 females 50, or 29.6%, showed evidences of healed or latent pulmonary lesions. Not indeed the large percentage commonly believed to exist.

Considering the incidence of single and multiple lesions, 94, or

59.6%, in the male series, showed single lesions, while 38, or 40.4%, revealed multiple lesions. Of the female series 30, or 60%, had single lesions, while 20, or 40%, revealed multiple lesions. In the localization and character of the lesions present there was not a striking difference between the two sexes. The site of election for the three following types of lesions, scars, calcareous nodules and encapsulated caseous areas, appearing in the following order: At or near the apex, right lung, left lung, both lungs; at or near the base, right lung, left lung, and lastly the right middle lobe which was the seat of but two lesions of the calcareous nodular type. From which it is plain that the situation of the healed or latent lesions corresponds, as must be expected, to the ordinary seat of active pulmonary tuberculosis.

The inquiry into the relation between the age and sex on the one hand, and the incidence of healed tuberculosis on the other, is of even greater interest. These observers have tabulated 404 cases in which the age and sex were determined. The table for both sexes is given below:

Birth	Cases	Active Tuberculosis	Healed Tuberculosis
To 10 years	51	10=19.6%	1= 1.9%
10-20 "	27	9=33.3%	4=14.8%
20-30 "	47	13=27.6%	6=12.7%
30-40 "	77	6= 7.7%	14=18.1%
40-50 "	84	2= 2.3%	33=39.2%
50-60 "	60	5= 8.3%	32=53.3%
60-70 "	39	1= 2.5%	27=69.2%
70-80 "	15	2=13.3%	7=46.6%
80-90 "	3	1=33.3%	2=66.6%
90-100 "	1	0= 0. %	1=100 %

From these figures it is plain that up to the age of 30 the evidences of active tuberculosis predominate, and that it is not until the decade between 30 and 40 is reached that the tendency toward healing is at all apparent. The same result is seen in the tables given for each sex separately and is much more strikingly illustrated in the male than in the female series, as is to be expected.

MILIARY TUBERCULOSIS

Referring to the recent work of Hodenpyl, on the occurrence of miliary tuberculosis of the pleura and its marked tendency towards healing, these authors have investigated 108 cases, all adults between the ages of 19 and 72, with reference to its existence. None of these cases were the subjects of active pulmonary tuberculosis. Miliary tubercles of the pleura were found in 61 cases of this series, or in 56.4%. In 56 cases the tubercles were on the visceral and in five on the parietal pleura. They occurred on

the right side in 27, on the left in 19, and on both sides in 15 cases. Tubercles from 38 of these 61 cases were examined histologically and were shown to present the usual histology of tubercle. Seven of the nodules were inoculated into animals all of which subsequently developed tuberculosis. A most satisfactory corroboration of the existing belief as to the nature of the miliary tubercle, which, though not proved in all instances, could, as these observers contend, undoubtedly be shown by animal experimentation to contain tubercle bacilli in the large majority of cases. Among the conclusions arrived at by these observers we quote in brief the following: "Up to the age of 18 or 20 years there is a very slight tendency of the tuberculous process in the lungs to quiescence and still less to healing. From the age of 20 on, the tendency to healing becomes greater and greater. * * * And further the tendency towards healing or quiescence begins earlier in women than in men while the point of maximum incidence of active pulmonary tuberculosis is also reached earlier."

The Proposed Amendment to the Rules of the Ohio State Medical Board

The question of the maintenance of a proper standard of medical education, in this as in every State, is one which admits of no discussion, however wide the divergence of opinion may be as to the best way of accomplishing the desired results. With the increasing demands made upon the student by the corresponding advance in our requirements, the tendency has been to increase the length of time necessary for qualification until, as at present, in many of our States a period extending over eight years, or its full equivalent, has been adopted as the minimum standard.

Appreciating the desirability of shortening the term required by the student to attain both his literary and professional degree, a number of our universities having affiliated medical departments have so arranged their curricula that it is now possible for the student in his senior year to follow courses bearing directly upon his medical school work, and which are credited as such, so that at the end of four years he may qualify for his arts degree and at the end of seven, and in one university at the expiration of six years, may receive his medical degree.

It is obvious that in many instances the possibility of accomplishing the amount of work required in a shorter period would appeal strongly to the student, and, especially, in view of the fact that the requirements of the various State Boards concerned are fully met.

At the present time in this State, under the rules of the State Board, as originally published, advanced standing upon the first year's work of a graded four years' course may be granted to students, holders of certain literary or scientific degrees, and to graduates of legally chartered and reputable dental schools, provided, of course, that certain requirements in the way of examinations covering the first year's work of a graded four years' medical course be complied with.

We are informed that in practice this rule has been practically ineffectual in accomplishing the desired end, and worse than this, that it has, in a measure, operated against the Ohio student in other States.

The New York law requires four years of medical study with the proviso that the regents may in their discretion accept as the equivalent of the first medical year, evidence of graduation from a registered college course, provided that such course included not less than the minimum requirements prescribed by the regents for such admission to advanced standing. We are told (*The Columbus Medical Journal*, October, 1904) that students from Ohio colleges have already been refused the privilege of taking the licensing examination in New York State for the sole reason that the minimum graduation standard, as provided for in the published rules of practically all the medical colleges of Ohio, is less than that fixed by statute for New York medical schools. It is not to be wondered at that New York resents any discrimination against her schools and students in favor of a lower standard.

PROPOSED AMENDMENT

At the last meeting of the Ohio State Board of Medical Registration and Examination, held October 4, the following proposed amendment to the rules and regulations of the Board was introduced:

"No medical college shall be recognized by the Ohio State Board of Medical Registration and Examination as in good standing that does not require four full courses of medical instruction of at least seven months each, provided that advanced standing may be given only to persons who furnish evidence of graduation from a registered literary college course, which course shall include 280 hours of human anatomy and other sciences sufficient to make it the full equivalent of the first medical year."

The adoption of this or some similar amendment, if it can be enforced under the present statutory requirements, and made actually effective, will do much to raise the standard of medical education in Ohio. It provides that the minimum length of term shall be one month longer than that required by the New York

law, and it further provides against any discrimination against our own students in favor of those from six-months' schools outside of the State. The provision, included in this amendment, for 280 hours of human anatomy is a very evident effort to meet the requirements of the first year of a graded four-years' medical course in the letter as well as in the spirit of the law. Such a regulation would mean, as pointed out by *The Columbus Medical Journal*, that those literary colleges unable to meet this specific requirement could allow their students to elect as the senior year of their literary course, the first year in a qualified medical college. In any event, we heartily endorse the enactment of some such amendment, and, in the absence of any better suggestion, we believe that this amendment should be adopted and enforced.

The Recommendations of the Committee on Public Health

The Cleveland Academy of Medicine at its last meeting ratified the recommendation to the Board of Health, passed by its Council at the instance of its Committee on Public Health. The full text of these recommendations will be found in the report of the Society's proceedings on another page of this issue.

We welcome this action of the Academy as timely and advisable. The provisions for the improvement of the milk supply are so arranged as to raise the standard in successive steps. This will allow the milk dealers ample time to make whatever changes in their equipment are necessary to comply with the new requirements without imposing upon them any unreasonable inconvenience. The proposed changes will not, in themselves, produce ideal conditions, but they represent as radical a reform as seems wise to attempt at present, and will admit of future modifications as may prove necessary.

The increase in district physicians has been planned from the standpoint of school inspection. In some cities the oversight of the schools has been in the hands of persons not physicians. We are glad that the Academy has suggested that, in the case of Cleveland, this inspection be entrusted to medical men.

The Salaries of the District Physicians

The Academy of Medicine has suggested that each of our district physicians should visit daily every public school in his district, in order to diagnose any contagious diseases that may exist among the pupils. This would mean an average of a little over three schools to be visited daily by each physician, in addition

to his regular duties. The salary suggested by the Academy is \$25.00 per month. Even this small amount will almost double the present expenditure for district physicians, of whom there are six, receiving at present a total of \$4,000 per annum. The City Council will no doubt raise some objection to this increased cost, and this probably explains the extreme modesty of the Academy Committee in proposing the above figure. It is true that the district physician does not devote his whole day to these duties, but he is liable to be called upon at any time and will probably spend as much of his time in behalf of the public as do some of the city and county officials who receive enormous fees, or salaries, and yet have most of their work done by assistants and clerks. We do not wish to suggest that the public treasury be looted for the benefit of the profession, but to insist upon fair treatment for the physicians and adequate compensation for their services. The district physician, as shown by the very fact of his holding a medical degree, possesses ability and education superior to the average political office-holder, and yet the comparison between the salaries of the two classes is usually ridiculous when considered in the light of the services rendered.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Digitalis:

Frank Jones, in the *Journal of the American Medical Association* for October 1, states, concerning digitalis, that in mitral insufficiency when compensation has failed or is failing digitalis is the sheet anchor, the general in command, while in aortic insufficiency, with the same condition, it too often plays the rôle like the soldier Jack Falstaff of old. He asks, has digitalis any place in aortic insufficiency? And continues that nearly all the eminent authorities teach that when the left ventricle fails in its efforts to come to the rescue of the incompetent aortic valve and becomes dilated and relaxed to such a degree as to produce leakage at the mitral valve, then digitalis is indicated. This view he most emphatically opposes. Digitalis in his hands has no place at all in aortic insufficiency, it matters not what may be the condition of the muscular structure of the heart. While dropsy in mitral insufficiency can be materially alleviated, dropsy in aortic insufficiency means preparation for a funeral in a short while. Dropsical symptoms in aortic insufficiency are very late manifestations; they are the expression of a heart tired and fagged in its efforts to relieve the incompetent valve, and in a majority of cases the dropsical manifestations have their origin in the mitral and not in the aortic valve. To give digitalis in these cases is like trying to make a wick burn when there is no oil in the lamp. He has reached the conclusion after careful study that there is but one valvular lesion in which digitalis is indicated, and that is in mitral insufficiency, and then not until compensation has failed. Chas. E. de M. Sajous, in the *Monthly Cyclo-pedia* for September, asserts that the underlying principle which should

govern the clinical use of digitalis is its *indirect* influence *through the adrenals*, on the heart and vasomotor system. He concludes that digitalis is probably the most perfect cardiac stimulant of our pharmacopeia, but only because, better than any other drug, it enhances the activity of the pituitary body, which in turn so stimulates the suprarenals as to bring them to their highest functional possibilities.

Carbolic Acid: In the *New York and Philadelphia Medical Journal* for October 8, Charles V. Burke expresses the belief that in carbolic acid poisoning the acid is absorbed very rapidly in sufficient quantity to paralyze the heart, this paralysis, and not respiratory failure, being the cause of death. When taken in sufficient quantity the acid is a quickly acting, fatal poison, and he believes a painless one. If a person supposed to have taken carbolic acid is screaming or making any sort of a disturbance the physician may be assured that the amount taken was small, or the acid perhaps got no further than the mouth or throat. As to treatment, he concludes that the sulphates (Epsom and Glauber's salts), mentioned everywhere as antidotes, are valueless. They do not save life. On the other hand, he thinks alcohol of great value, and if given promptly and followed by efficient washing of the stomach will save life. The use of the stomach tube is always necessary when any appreciable quantity has been taken. Alcohol should be given by the mouth if possible, if not, it must be used freely hypodermically, or by the rectum.

Hypnotics: Morris Manges, in the *Medical News* for September 24, treats of the rectal administration of the newer hypnotics. While the value of the rectal administration of opium and its derivatives, the bromides, chloral, etc., has long been recognized and appreciated, the newer hypnotics, such as sulfonal, trional, hedronal, etc., have been rarely used in this way. Yet cases frequently occur in which great good could be accomplished if these drugs could be administered in some way other than by the mouth. In one instance the rectal use of 20 grains of veronal, dissolved in some sherry and water, quieted the patient and half an hour later produced a sleep lasting ten hours. It may seem strange that insoluble preparations like sulfonal, trional and other hypnotics should be absorbed by the rectum, but clinical experience proves that this is the case and that the speed of absorption is about the same as that taking place in the stomach, even when administered in cocoa-butter suppositories. He found, further, that all the hypnotics were not equally active, hedronal, chloralose and chloretone were so slightly soluble as to be practically worthless in this connection, on the other hand, sulfonal acted much more powerfully than trional. Heroin, chloromid and phenacetin were also readily absorbed. The use of combinations of sulfonal and trional, or trional, sulfonal and phenacetin gave excellent results. The suppositories in all these trials were of the ordinary size (15 grains cocoa-butter). No irritation of the rectum was ever observed. The new hypnotic veronal is distinguished from the others by its free solubility, and for rectal use the veronal need not be administered in suppository form, but in solution either in warm milk or preferably in diluted sherry, to which a little salt or sugar has been added to increase the speed of absorption. The dose of veronal for this purpose is somewhat larger than when administered by the mouth, the average dose for an adult being 15 to 20 grains. The usual adult dose of veronal by the mouth, according to Hermann Davids, is four to eight grains for women and eight grains for men.

Holocain:

J. W. Wainwright, in the *American Therapist* for July, writes concerning the local anesthetic holocain hydrochlorid that it is necessary to use only distilled water in making the solution, as the presence of a calcium or other salt, even in infinitesimal quantities, is apt to cause the solution to become turbid; this, however, does not injure its anesthetic properties; filtering the solution removes the sediment, and the solution is again ready for use. It is used in certain nasal troubles and as an ocular anesthetic. It produces anesthesia in from 15 seconds to a minute, which lasts from 10 to 20 minutes. Its advantages over cocain lie in the fact that it does not produce mydriasis, affect the accommodation, corneal epithelium, or the intra-ocular pressure. Wurdeman and Black claim that holocain in a one per cent solution exceeds in anesthetic power a three per cent solution of cocain. Holocain should never be given internally nor used hypodermically, as when so used it is highly toxic.

Phosphoric Acid:

Merck's Archives for October cautions as to the various strengths of phosphoric acid in the pharmacopeias of different countries, as a good deal of confusion and uncertainty in dosage may arise from this fact. Thus if we, in this country, read in a German medical article that the author advises half teaspoonful doses of the strong official phosphoric acid, and we give such doses to our patients, rather unpleasant symptoms may follow, for the reason that the German phosphoric acid is only 25% strong, while our acid is 85%, or practically three and one-half times as strong. The acid of the French pharmacopeia is 50% strong, and that of the British 66.3% strong. It is well to bear this point in mind when reading articles abstracted from foreign sources.

Colloid Silver:

Netter and Salomon, in the *International Clinics* (Vol. I, 14th Series), are much impressed by the happy effect of colloid silver (collargol), (1) in many patients whose chance of recovery seemed more than dubious, and yet who were rapidly restored to health (infectious endocarditis, puerperal infection, hypertoxic diphtheria). (2) In less serious cases, in which convalescence appeared much sooner than usual, and, finally, (3) in some cases in which the course of the disease did not appear to be much modified, but in which the patient's general condition improved in a noticeable way. They do not hesitate to advise its use in the majority of infectious diseases, whether they are simple or associated forms of infection. The action of collargol is denoted in certain cases by a rapid fall in temperature; in some cases this decrease is observed the day after the inunction or intravenous injection, while in others the fall is progressive (lysis), and may only be noticed after several days. Besides this a marked improvement in the general condition is quickly noted, and the period of convalescence is not long in appearing. It must be understood that no miraculous results are to be expected from collargol, although it is a most valuable remedy, but that it will be of the greatest service in a large number of cases, and even in many for which there may seem to be no hope.

Strychnin:

In the *Therapeutic Gazette* for July, Geo. E. Pettey expresses the belief that constipation is oftener due to failure of peristalsis than to deficient secretion, and advises the use of strychnin as an evacuant. Strychnin is an excitomotor stimulant and exerts its principal effects upon the sympathetic motor centers. It

has an elective action for the involuntary or unstriated muscular fibre, and as the muscular coats of the intestine are composed of this class of fibres, the entire length of the intestinal tube may be simultaneously thrown into motion by direct stimulation of the sympathetic centers by this drug. Peristalsis induced in this way corresponds exactly to the normal physiologic peristalsis, that is it occurs because of the artificially induced *activity of the motor centers*. The quantity of strychnin needed, and the frequency of administration depend mainly upon the degree of insensibility of the motor centers, but when strychnin is administered in sufficient quantities and at proper intervals, active peristalsis can be excited and kept up as long as desired, provided the nerve centers are in condition to respond to any kind of stimulation. The dose of strychnin for producing an evacuation of the bowels varies from $\frac{1}{8}$ to $\frac{1}{30}$ of a grain, given at intervals of two or three hours until four to six such doses are given. If, say, $\frac{1}{20}$ of a grain is estimated to be a proper dose for a person weighing 130 pounds, it should be increased or diminished in proportion to the increase or decrease in weight. Young persons are much more susceptible to its action than old ones; short compactly built persons are also more susceptible than the tall, loosely built. If it is sought to move the bowels after anesthesia, a full dose of strychnin given one hour before the usual saline will excite peristalsis, and the saline acts more promptly and with much less distress. Kyle observes that it would be a boon to humanity if it were followed, as a general rule, to administer strychnin in connection with all agents where intestinal evacuation is the object sought.

Academy of Medicine of Cleveland

The nineteenth regular meeting of the Clinical and Pathological Section was held Friday, November 4. Dr Hamann in the chair. Dr W. O. Osborn presented a case of lues in a boy who had been infected in an unusual way. Dr Bacon showed a heart the seat of ulcerative endocarditis with early aneurism formation. Dr N. Stone Scott read a paper on "Operation for Extreme Hypospadias and Cases of Impassible Stricture." Drs Lower, Foote and Bunts discussed the paper.

"A Report of a Case of Thoracic Aneurism Complicated with Repeated Hemorrhages," was the title of a paper presented by Dr T. W. Clark. The specimen was also exhibited. The paper was discussed by Drs Howard and Aldrich.

The thirteenth regular meeting of the Section of Experimental Medicine was held Friday, November 11. Dr Spenser in the chair. Dr Aldrich showed a case of hernia cerebri secondary to an exploratory operation for glioma of the brain.

A paper entitled "The Estimation of Carbamates in Animal Fluids" was presented by Drs J. J. R. Macleod and H. D. Haskins, and the apparatus of Haldane and Barcroft, used in this work, was demonstrated. Carbamate of ammonia is probably an intermediate product in the formation of urea in the body, and is derived from ammonium carbonate. It has formerly been difficult to detect even its presence in animal fluids and impossible to estimate it quantitatively. The present method consists in completely precipitating the carbonates by a saturated solution of barium hydrate in the presence of ammonia. The difference in the

amount of carbon dioxid that could be generated from one c.c. of the filtrate and that from one c.c. of the fluid before precipitation of the carbonates will indicate the amount of carbamate present.

Dr T. Sollman read a paper upon "The Effect of Blood on the Blood-Vessels of the Kidney." Perfusion experiments on dogs' kidneys were carried out at varied intervals after removal and with various fluids. Viscid fluids have a marked effect in reducing the venous and ureteral flow and also the volume of the kidney. Within 10 hours after excision, if blood be perfused through the kidney, the venous flow is greatly increased while the ureteral flow and the volume are diminished. There is marked active dilatation of the vessels which is not caused by either the corpuscles or the hemoglobin, but by some constituent of the serum which has not yet been determined. The experiments are still being pursued. The paper was discussed by Drs Rosewater, Sihler, Lower, Macleod and Weir.

The twenty-second regular meeting was held Friday, November 18, the president, Dr Crile, in the chair. The report of the Council was read and the following recommendations of the Committee on Public Health were then ratified by the society:

1. That no milk or cream registering a temperature of over 50 degrees F. be admitted to the city.
2. That after January 1, 1905, no milk having a bacterial count of over 500,000 per cubic centimeter be sold in the city.
3. That after January 1, 1906, no milk having a bacterial count of over 250,000 per cubic centimeter be sold in the city.
4. Milk dealers whose milk falls below these standards three times within three months shall have their licenses withdrawn.
5. An increase of ten sanitary patrolmen.
6. An increase in the number of district physicians from six to twenty-eight, thus providing one for each ward.
7. That the district physicians, in addition to their present duties, be required to visit each school in their districts (wards) once a day to diagnose communicable diseases and to report on the sanitary condition of the schools.
8. That each of the twenty-eight district or ward physicians be paid \$25 per month.

The report of the Nominating Committee was read and adopted. The following nominations were made:

For president—Drs C. J. Aldrich, D. S. Hanson, and T. C. Martin.

For vicepresident—Drs E. P. Carter and H. T. Clapp.

For secretary—Drs C. E. Ford, F. C. Herrick, C. C. Stewart.

For treasurer—Drs A. W. Lueke, O. T. Thomas.

For trustees (2)—Drs J. H. Belt, H. E. Handerson, A. F. Spurney, and F. C. Taylor.

The election to take place at the December meeting.

The president appointed an Auditing Committee consisting of Drs E. Alden, M. D. Stepp, N. M. Jones.

The election of the following members was announced: Drs G. A. Berricelli, J. M. Bacon, Clara M. Davis, Julius Goldfinger, E. A. Hannum, A. C. McGannon, J. C. Nuss, Ed. Remy, Jr., W. E. Sampliner and A. C. Scott.

The following applications, approved by the Council, were read:

For Active Membership—Drs S. E. Carlton, C. E. Corlett, W. C.

Crouch, A. H. Gill, R. S. Hubbard, L. G. Knowlton, K. E. Ochs, W. T. Parsons, O. M. Shirey, R. E. Taft, W. A. Tims, Louis Umbstaetter, C. G. Warden, T. C. Young.

For Non-Resident Membership—Dr H. D. Peterson, Kelleys Island, O.

Dr Harvey Cushing, of Baltimore, read the paper of the evening, entitled, "Neurological Surgery," which he illustrated by numerous photographs (this paper will appear in the January issue of this JOURNAL). The paper was discussed by Drs H. S. Upson, D. P. Allen, C. J. Aldrich, H. L. Spence, C. Sihler, S. W. Kelley and G. W. Crile. Dr Cushing closed the discussion.

Book Reviews

Materia Medica for Nurses. By Emily A. M. Stoney, Superintendent of the Training School for Nurses in the Carney Hospital, South Boston, Mass. Beautiful 12 mo. volume of 300 pages. Second edition, thoroughly revised. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$1.50 net.

This little work is intended as a complete guide to materia medica and is a satisfactory summary of the subject. This, the second edition, has been largely re-written and comprises, first, general considerations and the classification of drugs; second, materia medica; and third, an appendix which includes poison emergencies, weights and measures, confinement tables, etc. Both the Apothecaries' and Metric Systems are employed, the recent remedies of merit are not noticed, and the book will certainly prove an excellent text-book for those engaged in nursing.

The Physician's Visiting List (Lindsay & Blakiston) for 1905. Fifty-fourth year of its publication. Philadelphia: P. Blakiston's Son & Co. Price \$1.00.

This Visiting List comes to hand for 1905, and contains not only space for diary entries and special memoranda, with pages for cash accounts as well as addresses of patients, but the first 22 pages contain a vast amount of valuable information, including tables of doses, which make this little work immensely valuable. Its size and bulk have been kept within such compass that it can easily be carried in the pocket.

The Medical Record Visiting List or Physician's Diary for 1905. New revised edition. New York: William Wood & Company, Medical Publishers.

The Medical Record Visiting List for 1905 represents a marked advance over the earlier editions of this complete and satisfactory pocket memoranda. There is an excellent table of doses as well as a valuable table of the number of drops contained in a fluid dram in sundry important preparations. In its revised form this visiting list should prove of great value to the busy physician.

The Medical News Visiting List. 1905. Thirty patients per week. Philadelphia and New York: Lea Brothers & Co. Price \$1.25.

The Medical News Visiting List for 1905 represents a distinct advance along the line of these pocket books of record. In addition to the usual tables of weights and measures and doses, there are a number of pages devoted to therapeutic reminders, which enhance considerably the value of the work. The usual space is set aside for records of dates, addresses, deaths and cash accounts, and the value of the work is much increased by a thumb index, which makes reference to any of these records quite easy.

Handbook of the Anatomy and Diseases of the Eye and Ear. For Students and Practitioners. By D. B. St. John Roosa, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School; formerly President of the New York Academy of Medicine, etc., and A. Edward Davis, A. M., M. D., Professor of Diseases of the Eye in the New York Post-graduate Medical School; Fellow of the New York Academy of Medicine. 300 pages, square, 12mo. Price, Extra Cloth, \$1.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

This is a compact little book and covers the field of diseases of the eye and ear fairly comprehensively. About two-thirds of the book is devoted to the anatomy and diseases of the eye, and the remaining third to the anatomy and diseases of the ear. The value of the chapters on anatomy would be much increased by a few well-chosen illustrations to accompany the text.

The discussion of the diseases of the eye and ear is as complete as could be expected in so small a book, and as a "handbook" for students this little volume is well worth its price.

The Surgical Treatment of Bright's Disease. By George M. Edebohls, A. M., M. D., LL. D., Professor of the Diseases of Women in the New York Post-graduate Medical School and Hospital, etc. Octavo, 327 pages. Frank F. Lisecki, New York, 1904.

The author has grouped chronologically in this volume the various articles on renal surgery which he has contributed to medical literature during the past five years. To this he adds detailed reports of his 72 operated cases with tables analyzing his results to date.

Edebohls claims that evidence submitted in the results of his procedure of decapsulation of the kidney in cases of nephritis "not alone justifies the surgical treatment of Bright's disease but establishes surgery as at present the main, if not the only hope of sufferers from an hitherto incurable malady."

He ascribes the immediate good results which follow decapsulation to the manipulation or massage of the organ which the operation involves, and the more remote results to the establishment of a new and increased collateral blood-supply through the newly formed capsule. In support of this theory of increased circulation he offers the findings in the autopsies of two of his cases, four and 15 months respectively after the operation, in which the new capsule was markedly more succulent and vascular than before.

With regard to animal experimentation in which many observers have not succeeded in finding this increased vascularization after decapsulation, the author suggests that the failure may be due to the fact that acute nephritis, in which no new circulation is needed, was the type induced in the experiments, while it is the effect of decapsulation in the chronic form which it is especially desirable to study, since this is the stage of nephritis in which his procedure has secured the best results. It is unfortunately difficult, he adds, to produce an artificial chronic form in animals.

As indications for his operation the author believes that decapsulation should be advised in the case of every sufferer from chronic Bright's disease who has a reasonable expectation of not less than a month of life without operation, provided three conditions are fulfilled. These conditions are: first, a positive diagnosis; second, the absence in the given case of absolute contraindications to *any* operation; third, the services of an operator experienced in renal surgery. Among contraindications the authors considers age, uncompensated heart lesions, and retinitis albuminurica.

In the matter of technic the author has abandoned fixation of the kidney as a routine measure, since he found it possible to get a better collateral circulation from perirenal fat than from muscles. He accordingly fixates the organ only in those cases where symptoms were directly attributed to the kidney's abnormal movability.

The analysis of the writer's results in 72 cases shows 13 unimproved, 42 improved in varying degree, and 17 cured. Among his "cured" cases Edebohls includes those in which the urine remains normal and in which there are no symptoms referable to the kidney. The interval since operation varies in these cases from one year and four months to eleven years and eight months.

A Manual of Experimental Physiology for Students of Medicine, by Winfield S. Hall, Ph. D., M. D. (Leipsic). Professor of Physiology Northwestern University Medical School; Professor of Physiology, Wesley Hospital School for Nurses; Professor of Physiology, Mercy Hospital Training School for Nurses; Lecturer on the Physiology of Exercise, Institute and Training School, Chicago. With 89 Illustrations and a Colored Plate. Lea Brothers & Co., Philadelphia and New York. 1904.

The work has been specially prepared so as to prove valuable to the student in his subsequent clinical and surgical career. Special emphasis is therefore laid on the practical points and thanks to the numerous illustrations and lucid descriptions the technic of most of the experiments is rendered very plain. The idea of merely indicating the points upon which to make observations without actually giving the results, is valuable in developing the faculty of observation in the student, but in physiologic experimental work results are so often unexpected and misleading that we think a little more information as to the results expected might have been given. Laboratory work is essential to a thorough knowledge of this subject and this guide will be of valuable aid in this branch of work. The appearance of the book is neat and attractive.

The Late Dr William L. Buechner

The Medical and Surgical Staff of the Youngstown City Hospital, at a meeting held on November 10, 1904, passed the following resolutions:

It is with unfeigned sorrow that we have been brought to a realization of the fact of the death of our honored associate, Dr William L. Buechner.

His identification with the hospital dates from the period of the founding of the institution, and continued, without interruption, while life remained. Its larger success and future possibilities must ever bear an important relation to the time and attention he so freely bestowed upon its management in the entire years of its history. The position of consulting physician he filled to the fullest measure, for he was a man of rare professional attainments, wise in counsel, sound in judgment. His advice in matters professional was widely sought and highly valued. His was a forceful personality, yet, with strength was combined a kindness of spirit well known to those who best knew him. As an associate, he was ever courteous and considerate. The contribution of his lifetime to the advancement of sanitation, the amelioration of life, was much larger than falls to the lot of the average of the men of our profession. We find in his character much to admire, and in his example much to emulate. His virtues and activities must cause his name to be held long in respectful and loving remembrance.

Medical News

J. V. Hartman has located in Findlay, Ohio.

Dr Voak has moved from Parkman to Cleveland.

Dr Callahan has again located in Gustavus, Ohio.

Sterling Medical College has opened with 61 freshmen.

F. Lamb is the new curator of the Cincinnati City Hospital.

Chester Bliss, of Sandusky, will open an office at Norwalk.

W. E. Kneale, of Medina, will reside in Granger in the future.

J. F. Johnson, of Perrysville, will change his location to Shelby.

J. E. Myers and wife, of Springfield, will spend the winter in Cuba.

Dudley P. Allen, of Cleveland, has recently returned from a trip abroad.

Dr and Mrs Brown, of Beloit, will reside in Hastings, Fla., in the future.

Dr and Mrs A. Per Lee Pease, of Massillon, are on a voyage to the Orient.

J. W. Burnham, of Windham, has removed to his new home in Adamsville.

A son was born, recently, to D. W. Ruddin and wife, of North Baltimore.

Earl Burns, a Cincinnati Hospital interne, has been appointed an army surgeon.

Burton Weller, of Toledo, and Miss Edna Myers, of Tiffin, were married recently.

S. B. Lightner has returned to Sabina after a very pleasant vacation in California.

Dr and Mrs Clippenger left Havana, Ohio, for their new home in Bellefontaine.

Jerry Metzer, of Oak Harbor, has gone to Chicago for a year's postgraduate work.

Dr Pritchard, formerly of Monroeville, is conducting a private hospital in Colton, Cal.

E. Marshall, of Dayton, will locate somewhere in the southwest, on account of ill health.

Herbert Kendell and bride, of Covington, arrived home from their European wedding tour.

The will of the late W. L. Burchaer, filed at Youngstown, shows an estate of \$62,017.58.

There will be medical inspection in the Summit County schools, dating from November.

A. V. Phelps has been chosen to succeed the late James G. Hyndman, of the Ohio Medical College.

E. C. Brush and son, of Zanesville, were in a bad runaway accident and narrowly escaped serious injury.

At a business meeting of the Muskingum County Medical Society it was decided to raise the rate of fees.

The engagement of George Rush Love, of Toledo, and Miss Helen Josephine Dermig, of Saco, Me., has been announced.

The Canton Medical Society met November 4. R. A. Biechele read a paper on "Pneumonia." A general discussion followed the paper.

W. M. Hondman has been elected, by the Humane Society of Hardin County, to fill the vacancy caused by the death of A. W. Munson.

The Columbiana County Medical Society held its meeting November 8, at East Liverpool. E. L. Hamilton read a paper on "Pneumonia."

The Cincinnati district physicians have asked for an increase in salary. They ask for \$50.00 instead of \$25.00 which they are being paid now.

J. M. Hyde, of Mansfield, has sold his practice to A. M. Saunders. Dr Hyde has received the appointment of physician at the State Hospital at Athens.

The Medical Societies of Crawford and Marion Counties held a very profitable meeting late in September at Galion. At the close of the meeting an elegant three course banquet was served.

The First Annual Convention of the Seventh Councilor District of the Ohio Medical Society was held in Uhrichsville, November 1. A paper was read by Dr Beebe, of Cincinnati. Dr Barr, a returned missionary from India, was present.

Deaths

John E. Jones, of Cincinnati, died recently.

John Bunn, of West Union, died November 2.

C. B. Harrison, of Circleville, died October 28.

James G. Hyndman, of Cincinnati, died recently.

H. C. Chappleear, of Zanesville, died suddenly, September 13.

Daniel P. Putnam, an old resident of Cleveland, died November 5.

A. J. Bumpus, aged 24 years, died in Steubenville, early in November.

After an illness of 10 days, D. M. Barrere, of Dayton, died of pneumonia.

A. Wood, one of Huron County's oldest and best known physicians, died in November.

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